

**U.S. Department of the Interior
Bureau of Land Management**

**STANDARDS DETERMINATION DOCUMENT
August, 2010**

**Authorization 2700045
Term Grazing Permit Renewal on the
Medicine Butte (00501) Allotment**

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Standards and Guidelines Assessment

The Standards and Guidelines for Nevada's Northeastern Great Basin Area were developed by the Northeastern Great Basin Resource Advisory Council (RAC) and approved in 1997. Standards and guidelines are likened to objectives for healthy watersheds, healthy native plant communities, and healthy rangelands. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the standards.

This Standards Determination Document evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Medicine Butte Allotment in the BLM Ely District. This document does not evaluate or assess achievement of the Wild Horse and Burro or the Off Highway Vehicle Standards or conformance to their respective Guidelines.

The Standards were assessed for the Medicine Butte Allotment by a BLM interdisciplinary team. Documents and publications used in the assessment process include the Soil Survey of White Pine County (USDA-NRCS 1997); Ecological Site Descriptions for Major Land Resource Area 28B (USDA-NRCS 2003); Interpreting Indicators of Rangeland Health (USDI-BLM et al. 2000); Sampling Vegetation Attributes (USDI-BLM et al. 1996); and the National Range and Pasture Handbook (USDA-NRCS 1997); A complete list of references is included at the end of this document. All are available for public review in the BLM Ely District Office. The interdisciplinary team used rangeland monitoring data, professional observations, and photographs to assess achievement of the Standards and conformance with the Guidelines.

The Medicine Butte Allotment occurs entirely within White Pine County and is situated approximately 23 miles northwest of Ely, Nevada (Appendix II, Figure 1). This allotment encompasses approximately 287,368 public land acres within the BLM Ely district. Elevation ranges within 6,200 feet in Butte Valley to 9,850 feet in the Egan Range. Average precipitation at Lages weather station (13 miles from the northeast corner of the allotment) was 7.9 inches from 1984 to 2009 and 8.7 inches at the McGill weather station (16 miles from the southeast corner of the allotment) from 1978 to 2009 (Appendix I, Tables 4.1, and 4.2). Allotment boundary fences do not exist separating the Medicine Butte Allotment from adjacent allotments. Most of Medicine Butte (approximately 96 %) is within the Triple B Wild Horse Herd Management Area (Appendix II, Figure 2). The Goshute Canyon wilderness comprises 10,004 acres (approximately 3.5%) of the Medicine Butte Allotment (Appendix II, Figure 2). Additionally, approximately 30 miles of Pony Express Trail runs through the middle of the allotment (Appendix II, Figure 2). In 2000 the cherry fire burned approximately 7,761 acres within the allotment.

The Medicine Butte allotment is located within sage-grouse (*Centrocercus urophasianus*), mule deer (*Odocoileus hemionus*), elk (*Cervus canadensis*), and antelope (*Antilocapra americana*) habitat. This allotment has relict dace, (*Relictus solitaries*) in the northern portion, on private

land. The allotment also has a population of Nachlinger catchfly (*Silene nachlingerae*) on its southeast boundary. There is unoccupied habitat for the Desert bighorn sheep (*Ovis canadensis nelsoni*) in the allotment. There is the potential for the Nevada Department of Wildlife (NDOW) to propose reintroducing Desert bighorn sheep into this unoccupied habitat, which could lead to health issues for them from domestic sheep. The pygmy rabbit (*Brachylagus idahoensis*) is not known within the allotment, however there is a large amount of potential habitat scattered throughout the allotment.

Within the Medicine Butte Allotment occurs the temporary cherry fire fence that was constructed in 2000 following the 2000 cherry fire. The fence is approximately six miles in length and was constructed to temporarily prevent livestock from grazing the burned area for a minimum of two growing seasons or until the rehabilitation objectives were met. To date, rehabilitation objectives have been met and livestock grazing has commenced. Following the fire, vegetation composition is primarily deep rooted perennial grasses. The fence location occurs in sections 4, 9, and 10 of T24N R62E and sections 26, 27, and 33 of T25N R62E (Appendix II, Figure 8).

The current term permit is issued for the period of 4/15/2004 to 4/15/2014. This is a sheep, cattle, and domestic horse permit with a total grazing preference of 15,174 AUMs from April 15th to November 15th for sheep and March 1st to February 28th for cattle. Of these 15,174 AUMs, 3,675 AUM's are active for sheep use, 3,557 AUM's are active for cattle use, and 7,942 AUM's are suspended nonuse (Appendix II, Figure 5). The allotment is divided into use areas with domestic horse use only occurring in the Snow Creek seedings (Appendix II, Figure 6).

Native vegetation varies throughout the Medicine Butte Allotment and includes limber pine (*Pinus flexilis*), white fir (*Abies concolor*), quaking aspen (*Populus tremuloides*), curl-leaf mountain mahogany, (*Cercocarpus ledifolius*), Utah juniper (*Juniperus osteosperma*), single leaf pinyon pine (*Pinus monophylla*), four-wing saltbush (*Atriplex canescens*), shadscale (*Atriplex confertifolia*), winterfat (*Krasheninnikovia lanata*), basin big sagebrush (*Artemisia tridentata* var. *tridentata*), Wyoming big sagebrush (*Artemisia tridentata* var. *wyomingensis*), mountain big sagebrush (*Artemisia tridentata* var. *vaseyana*), black sagebrush (*Artemisia nova*), black greasewood (*Sarcobatus vermiculatus*), spiny hopsage (*Grayia spinosa*), basin wildrye (*Leymus cinereus*), Indian ricegrass (*Achnatherum hymenoides*), squirreltail (*Elymus elymoides*), needle and thread (*Hesperostipa comata*), bluebunch wheatgrass (*Pseudoroegneria spicata*), alkali sacaton (*Sporobolus airoides*), alkali cordgrass (*Spartina gracilis*), sedge (*Carex* sp.), rush (*Juncus* sp.), and saltgrass (*Distichlis spicata*) among a variety of annual and perennial forbs.

Thirty-one key areas have been established on the Medicine Butte Allotment for monitoring purposes, which aid in evaluating the allotment (Appendix II, Figure 3). These areas were selected based on accessibility and general use by livestock, vegetation, and ecological range sites. Key areas represent range conditions, trends, seasonal degrees of use, and resource production values.

PART 1. STANDARD CONFORMANCE REVIEW

The following table summarizes if the standard was achieved within each pasture.

PASTURE	STANDARD 1 Upland Sites	STANDARD 2 Riparian and Wetland Sites	STANDARD 3 Habitat
North snow creek seeding	Standard Achieved	Not Applicable	Standard Achieved
South snow creek seeding	Standard Achieved	Not Applicable	Standard Achieved
West snow creek seeding	Standard Achieved	Not Applicable	Standard Achieved
Paris seeding /Pony Mt.	Standard Achieved	Not achieving the standard but making significant progress towards. Livestock are not a significant contributing factor. Failure to meet the standard is related to other issues/conditions i.e. wild horse trampling.	Not achieving the Standard, but making significant progress towards. Livestock are not a significant contributing factor. Failure to meet the standard is related to other issues or conditions i.e. drought and wild horse use.
Slough/meadows	Standard Achieved	Standard Achieved	Standard Achieved
Telegraph	Standard Achieved	Not achieving the Standard, but making significant progress towards achieving the Standard; Livestock are not a causal factor. Failure to meet the standard is related to other issues/conditions i.e. wildlife trampling.	Not achieving the Standard but making significant progress towards achieving the Standard; Livestock are not a causal factor.
Hunter point	Standard Achieved	Not Applicable	Not achieving the Standard, but making significant progress towards achieving the Standard; Livestock are not a causal factor. Failure to meet the standard is related to other issues/conditions i.e. drought.

Butte valley	Standard Achieved	Not achieving the Standard, but making significant progress towards achieving the Standard; Livestock are not a causal factor. Failure to meet the standard is related to other issues/conditions i.e. wildlife trampling, recovering from a burn.	Not achieving the Standard, but making significant progress towards achieving the Standard; Livestock are a causal factor. Additional causal factors include excessive wildlife and wild horse utilization and drought
Black Mountain	Not Applicable	Not Applicable	Not Applicable

Standard 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

- Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to potential of the site.

Determination:

☒ Achieving the Standard

☐ Not Achieving the Standard, but making significant progress towards achieving

☐ Not Achieving the Standard, and not making significant progress toward standard

Causal Factors

☐ Livestock are a causal factor to not achieving the standard.

☐ Livestock are not a causal factor to not achieving the standard

☐ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

☒ In conformance with the Guidelines

☐ Not in conformance with the Guidelines

Rangeland monitoring data and professional observation indicates that infiltration and permeability rates are appropriate for the Medicine Butte Allotment. Cover values measured at key areas in 2009 using the line-point intercept method were commonly within the range or exceeded cover values presented in the Ecological Site Descriptions (ESD) (Appendix I, Table 1.1 and 1.2).

Key areas 2, 15, 16, 22, and 30 occur within a saline terrace 5-8 in. precipitation zone (P.Z.) ecological site (028BY047NV) based on soil surveys and ecological site descriptions developed by the Natural Resource Conservation Service (NRCS) (USDA – NRCS. 2003). This ecological

site occurs on axial-stream floodplains, floodplain terraces and alluvial plains. Slope gradients of 0 to 2 percent are most typical. Elevations are 4,500 to 5,500 feet. The plant community is dominated by sickle saltbush and western wheatgrass. Indian ricegrass, bottlebrush squirreltail, and winterfat are other important species associated with this site based on the ESD. Also according to the ESD, live vegetation cover estimated for this ecological site is 5-10 percent (USDA – NRCS. 2003). Vegetation cover values measured in 2009 for key areas 2, 15, 16, 22, and 30 were 59, 29, 9, 13, and 48 percent respectively (Appendix I, Table 1.2.). Litter, embedded litter, and rocks composed additional ground cover. Additional indicators of infiltration and permeability rates (i.e. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form based on professional observation.

Key areas 1, 3, 10, 14, 17-21, 25, and 26 occur within a coarse, silty 6-8 in. P.Z ecological site (028BY084NV) (Appendix I, Table 1.1). This ecological site occurs on inset fans, fan piedmont summits, off-set bars, lake terraces and fan skirts. Slopes range from 0 to 15 percent, but slope gradients of 2 to 8 percent are most typical. Elevations are 5,800 to 6,500 feet. The soils in this site are typically coarse textured throughout the profile, or at least in the upper profile. Permeability is moderate to moderately rapid with low available water holding capacity. Potential for sheet and rill erosion is slight. Dominant vegetation for this ecological site is winterfat and Indian ricegrass. Vegetation cover is expected to be 10-20 percent (USDA – NRCS. 2003). Vegetation cover measured in 2009 for key areas 1, 3, 10, 14, 17-21, 25, and 26 was 38, 28, 21, 28, 38, 22, 37, 29, 24, 23, and 37 percent respectively. Litter, embedded litter, and rocks composed additional ground cover. Based on professional observation, indicators of infiltration and permeability rates e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form.

Key areas 7, 8, 11, 12, 13, 23, and 24 occur within a loamy 8-10 in. P.Z. ecological site (028BY010NV) (Appendix I, Table 1.2) based on soil surveys and ecological site descriptions (NRCS) (USDA – NRCS. 2003). This site occurs on fan piedmonts, rock pediments and low rolling hills. Slopes range from 2 to 50 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 5,000 to 6,500 feet. The soils in this site are moderately deep to deep and well drained. The available water holding capacity varies with soil texture and soil depth, ranging from low to moderate. Surface soils are 3 to 10 inches thick and are moderately coarse to medium textured. Many soils are modified with a high volume of gravels, cobbles or stones throughout the profile. Runoff is medium. The potential for sheet and rill erosion is moderate to high depending on slope. Wyoming big sagebrush, Indian ricegrass, and needle-and-thread grass are dominant. Live vegetation cover estimated for this ecological site is 10-20 percent (USDA – NRCS. 2003). Vegetation cover values measured in 2009 for key areas 7, 8, 11, 12, 13, 23, and 24 were 14, 49, 36, 49, 30, 35, and 28 percent respectively (Appendix I, Table 1.2). In addition, the soil surface was protected by litter, embedded litter, and rocks. Infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form based on professional observation.

Key areas 4 and 5 occur within a shallow loam 8-10 in. P.Z ecological site (028BY080NV). This ecological site occurs on fan piedmonts, rock pediments and hills. Slopes range from 2 to 50 percent, but slope gradients of 2 to 15 percent are most typical. Elevations are 5,000 to 6,500 feet. The soils in this site are typically very shallow to shallow. Where the soils are deeper, there is a restrictive layer of lime, clay or rock fragments at a shallow or very shallow depth. The available water holding capacity is very low to low. Soils may be modified with a high volume of gravels, cobbles or stones throughout the profile. Runoff is moderate to rapid. The potential for sheet and rill erosion is low to moderate depending on slope. Dominant vegetation for this ecological site is Wyoming big sagebrush, Indian ricegrass, and needle-and-thread grass. Live vegetation cover estimated for this site is 10-20 percent (USDA – NRCS. 2003). Vegetation cover values measured in 2009 for key areas 4 and 5 were 19 and 25 percent respectively (Appendix I, Table 1.2). Additionally, the soil surface was protected by litter, embedded litter, and rocks. Based on professional observation, additional indicators of infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form.

Key areas 6 and 9 occur on a wet sodic bottom ecological site (028BY050NV). This site occurs on axial-stream floodplains and lake plains at the fringe of floodplain playas. Slope gradients of 0 to 2 percent are most typical. Elevations are 4,700 to 5,200 feet. The soils of this site are very deep and poorly to somewhat poorly drained. The soils are usually saturated with water during late winter and spring. During drier periods, the water table may lower to depths greater than 60 inches. In some cases, the soil surface is encrusted with water soluble salts, limiting seedling establishment. According to the ESD, saltgrass is the dominant vegetation with live vegetation cover estimated at 60-80 percent (USDA – NRCS. 2003). Vegetation cover measured in 2009 at key areas 6 and 9 was 51 and 91 percent respectively (Appendix I, Table 1.2). Litter composed an additional 14 and 2 percent ground cover for key areas 6 and 9, respectively. Additional indicators of infiltration and permeability rates (i.e. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form based on professional observation.

Key area 27 occurs within a woodland ecological site (028BY062NV). This woodland site occurs on mountain sideslopes on all aspects. Slopes range from 15 to over 75 percent, but are typically 30 to 50 percent. Elevations are 6,500 to 7,600 feet. Average annual precipitation is 12 to 14 inches. Soils are shallow to moderately deep from mixed sources of volcanic origin. These soils are typically skeletal with 35 to over 75 percent gravels, cobbles or stones, by volume, distributed throughout the profile. Available water holding capacity is moderate to low, but trees and shrubs extend their roots into fractures in the bedrock allowing them to utilize deep moisture. High amounts of rock fragments are present at the soil surface, occupying plant growing space, yet helping to reduce evaporation and conserve soil moisture. Coarse fragments on the surface provide a stabilizing affect on surface erosion conditions. Runoff is medium to rapid, and potential for sheet and rill erosion is moderate to severe depending on slope. Single leaf pinyon, utah juniper, mountain big sagebrush, bluebunch wheatgrass, and Thurber's needlegrass are the dominant vegetation for this ecological site (USDA – NRCS. 2003). Vegetation cover measured at key area 27 in 2009 was 75 percent (Appendix I, Table 1.2). Additionally, the soil surface was protected by litter, embedded litter, and rocks. Additional

indicators of infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate and land form.

Key area 28 occurs on a calcareous ecological site (028BY048NV). This site occurs on high mountain ridges, shoulders and upper backslopes. Slopes range from 4 to 75 percent, but slope gradients of 4 to 30 percent are most typical. Elevations are 8,000 to 9,400 feet. The soils in this site are derived from calcareous sedimentary material. These soils normally have from 35 to over 50 percent gravel and cobbles, by volume, distributed throughout their profile. The soils are moderately or strongly alkaline and the available water holding capacity is low. These soils usually have high amounts of gravels, cobbles or stones on the surface. Black sagebrush and bluebunch wheatgrass are the dominant vegetation with cover estimated at 15-20 percent (USDA – NRCS. 2003). Live vegetation cover measured in 2009 at key area 28 was 29 percent (Appendix I, Table 1.2). Furthermore, the soil surface was protected by litter, embedded litter, and rocks. Infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate, and land form based on professional observation.

Key area 29 occurs on a loamy ecological site (028BY015NV). This ecological site is found on mountain valley fans and mountain footslopes. Slopes range from 2 to 30 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 8,000 to over 9,500 feet. The soils in this site are moderately deep to deep and are well drained. The available water holding capacity is moderate to high. The surface layer is medium textured and is 10 inches or more in thickness to the subsoil or underlying material. This site provides a cool, moist environment for plant growth because of the elevations where it occurs. Soil temperatures and evaporation potentials are limited during the growing season due to reduced insulation. Snow accumulation persists on this site late into spring when the soil is not frozen. Snow-melt, at this time, is added to the soil moisture supply and is available during most of the active growth period. Runoff from this site is slow and the potential for sheet and rill erosion is low to moderate depending on slope. Dominant vegetation for this ecological site consists of mountain big sagebrush and bluebunch wheatgrass. Live vegetation cover estimated for this ecological site is 25-35 percent (USDA – NRCS. 2003). Live vegetation measured in 2009 at key area 29 was 64 percent (Appendix I, Table 1.2). Additionally, the soil surface was protected by litter, embedded litter, and rocks. Based on professional observation, additional indicators of infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate and land form.

Key area 31 occurs on a calcareous loam ecological site (028BY094NV). This site occurs on summits and moderately steep sideslopes of low rolling hills and piedmont slopes on all exposures. Slopes range from 2 to 50 percent, but slope gradients of 4 to 15 percent are most typical. Elevations are 6,000 to 7,500 feet. The soils of this site are calcareous throughout, with the amount of carbonates increasing with soil depth. These soils have formed from limestone or dolomite parent materials. The soils are moderately deep to deep and well drained. Available water holding capacity is low to moderate, and some soils are modified with high volumes of rock fragments throughout the soil profile. The dominant vegetation for this ecological site

should be mountain big sagebrush, Wyoming big sagebrush, bluebunch wheatgrass, and Indian ricegrass. However, this site burned in the 2000 Cherry Creek fire so it is now dominated by perennial bunchgrasses (i.e. Indian ricegrass, bluebunch wheatgrass, needle and thread, squirreltail, and western wheatgrass) and forbs. Live vegetation cover estimated for this ecological site is 20-30 percent (USDA – NRCS. 2003). Vegetation cover measured at key area 31 was 54 percent. Additionally, the soil surface was protected by litter, embedded litter, and rocks. Additional indicators of infiltration and permeability rates (e.g. rills, gullies, water flow patterns, pedestals, wind scouring, blowouts, depositional features, microbiotic crust presence, etc.) were appropriate to soil type, climate and land form.

Standard 2. Riparian and Wetland Sites

Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

- Stream side riparian areas are functioning properly when adequate vegetation, large woody debris, or rock is present to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:
 - Width/Depth ratio; Channel roughness; Sinuosity of stream channel; Bank stability; Vegetative cover (amount, spacing, life form); and other cover (large woody debris, rock).
 - Natural springs, seeps, and marsh areas are functioning properly when adequate vegetation is present to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.
 - Chemical, physical and biological water constituents are not exceeding the state water quality standards.

The above indicators shall be applied to the potential of the site.

Determination:

- ☐ Achieving the Standard
- ☒ Not Achieving the Standard, but making significant progress towards
- ☐ Not Achieving the Standard, and not making significant progress toward standard

Causal Factors

- ☐ Livestock are a causal factor to not achieving the standard.
- ☒ Livestock are not a causal factor to not achieving the standard
- ☒ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

- ☐ In conformance with the Guidelines
- ☒ Not in conformance with the Guidelines

Eleven of 48 springs distributed throughout the Medicine Butte Allotment were identified for Proper Functioning Condition (PFC) monitoring based on accessibility and use by livestock. Proper functioning condition monitoring collectively assesses the riparian and wetland site indicators. These springs were visited and assessed in 2009 by an interdisciplinary team (Appendix I, Table 5.1). Of the riparian areas assessed, seven met the criteria for proper functioning condition. These riparian areas all had adequate vegetation (i.e. diverse composition, diverse age class distribution, species with strong and dense root masses, vigorous, and high cover values), and/or rock present to dissipate stream energy associated with high water flows. Hydrological indicators (i.e. access to floodplain, channel characteristics in balance with landscape, saturation, no excessive water fluctuations, potential extent is achieved, upland watershed is in balance with riparian system, water quality, no excessive disturbance, and safe flow passage) and erosion/deposition indicators (i.e. no chemical accumulation, hydric soil maintenance, perched water source, no excessive erosion or deposition, stability, and adequate bank cover) illustrate that these riparian systems are functioning properly. As such, each of these seven riparian systems was rated in the “proper functioning condition” class (Appendix I, Table 5.1)

One unnamed spring (ASPEN # 10423) and Pony Springs (4) were assessed and rated in the “Functional at Risk” category with an upward trend. The unnamed spring’s hydrological and erosion/deposition indicators were appropriate for the riparian system to function properly. However, there was a lack of adequate vegetation cover present to dissipate energies that are associated with increased erosion rates. There is bare soil at the lower end of the unnamed spring riparian area due to wildlife trampling. A burn in 2000 occurred at this site so the riparian system may still be recovering. Additionally, this burn may have spurred many of the undesirable species (e.g. thistle, mustard, and cheatgrass) to establish at this site. At the Pony Springs riparian site, vegetation and erosion/deposition indicators were appropriate; therefore they were functioning properly. However, the riparian area has not achieved its potential extent and flow patterns have been altered as a result of trampling by wild horses. A pipe and trough development occurred at this site sometime in the past. Currently water flows from the pipe, but the trough bottom is rusted out, creating the riparian area.

Westside spring development was assessed as Functional at Risk with a downward trend. The erosion/deposition indicators were appropriate for the riparian system to function properly at this site. However, the riparian area has not achieved its potential extent, flow patterns have been altered as a result of wildlife hoof action, and the lack of adequate vegetation cover present to dissipate energies associated with increased erosion rates. In addition, this riparian area has been developed (i.e. springbox, pipe, trough, holding tank) and would probably not naturally occur. The riparian area has formed below the development as a result of a broken pipe.

White rock spring was rated as Not Functioning because: water fluctuation levels are excessive; the potential extent has not been achieved; flow patterns have been altered by hoof action by wild horses; there is a lack of adequate vegetation cover present to dissipate energies associated with increased erosion rates; soil saturation is insufficient to maintain hydric soil properties; and excessive erosion is occurring due to the lack of vegetation cover. This site has been approved

for fencing, which will be constructed in the summer of 2010 to improve the riparian area from a non-functioning riparian area to one that is in properly functioning condition.

Standard 3. Habitat:

Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

As indicated by:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, height, or age class);
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

Determination:

☐ Achieving the Standard

☒ Not Achieving the Standard, but making significant progress towards

☐ Not Achieving the Standard, not making significant progress toward standard

Causal Factors

☒ Livestock are a causal factor to not achieving the standard.

☐ Livestock are not a causal factor to not achieving the standard

☒ Failure to meet the standard is related to other issues or conditions

Guidelines Conformance:

☐ In conformance with the Guidelines

☒ Not in conformance with the Guidelines

Rangeland monitoring data (Appendix I) and professional observations indicate that some pastures within the Medicine Butte Allotment are healthy, productive, and have a diverse population of native and/or desirable plant species, appropriate to the site characteristics. This in turn, provides suitable habitat for wildlife as a function of vegetation structure, distribution, productivity, and composition. However, other pastures are failing to achieve the habitat standard as a result of skewed vegetation composition and structure. When viewing the 2009 dataset, it is important to acknowledge that this was a favorable year for some plant communities (e.g. sickle saltbush) due to the abundant spring precipitation received.

The north snow creek seeding pasture is achieving the standard. Vegetation cover measured in 2009 at key areas 11 and 24 within the north snow creek seeding were 36 and 28 percent, respectively, which exceeds the range presented in the ESD (10-20%) (Appendix I, Table 1.2). Production at key areas 11 and 24 was 1,027 and 827 lbs/acre respectively, which exceeds the range presented in the ESD (i.e. 400-800 lbs/acres) (Appendix I, Table 1.3a). Key area 11 had a shrub, grass, forb, and weed composition by weight of 57, 40, 2, and 0 percent, respectively, which is similar to ESD estimates of 45 percent shrubs, 50 percent grasses, and 5 percent forbs

(Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 24 was 24, 47, 29, and 0 percent respectively, which is comparable to ESD estimates (45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 1.3b). Total vegetation production and composition is appropriate for key areas 11 and 24. Additionally, utilization levels have been appropriate within the north snow creek seeding pasture since 1994 (Appendix I, Table 1.4). Licensed livestock use within this pasture was 64.9 percent from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, key area 11 appeared stable while at key area 24, shrubs have increased and crested wheatgrass has decreased at increasing rates. The latter may be attributed to micro-site conditions and recent drought conditions. Vegetation structure and distribution within the north snow creek seeding is appropriate based on professional observation.

The south snow creek seeding is achieving the standard. Vegetation cover measured in 2009 at key areas 8, 12, and 13 within the south snow creek seeding were 49, 49, and 30 percent, respectively, which exceeds the range presented in the ESD (10-20%) (Appendix I, Table 1.2). Production at key areas 8 and 13 was 1,161 and 1,350 lbs/acre respectively, which exceeds the range presented in the ESD (i.e. 400-800 lbs/acres) (Appendix I, Table 1.3a). Key area 8 had a shrub, grass, forb, and weed composition by weight of 30, 70, 0, and 0 percent, respectively, which is comparable to ESD estimates of 45 percent shrubs, 50 percent grasses, and 5 percent forbs given that it is a seeding (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 13 was 49, 49, 2, and 0 percent respectively, which is similar to ESD estimates (45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 1.3b). Composition by cover (Appendix I, Table 1.2) of shrubs, grasses, forbs, and weeds for key area 12 was 8, 85, 2, and 5 percent respectively, which differs from ESD estimates of composition by weight (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 1.3b). However, since this site is a crested wheatgrass seeding, a large amount of grass cover is desired. Total vegetation production and composition is appropriate for all key areas within the south snow creek seeding. Utilization levels have been medium to heavy within this pasture since 1994 (Appendix I, Table 1.4). Licensed livestock use was 62.7 percent of permitted use from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, key areas 8, 12, and 13 appeared stable with shrubs (mostly Wyoming big sagebrush and some rabbitbrush) increasing and crested wheatgrass decreasing at natural succession rates. Vegetation structure and distribution within the south snow creek seeding is appropriate based on professional observation.

The west snow creek seeding pasture is achieving the standard. Vegetation cover measured at key area 23 within this pasture was 35 percent, exceeding the range presented in the ESD (10-20%) (Appendix I, Table 1.2). The composition by cover (Appendix I, Table 1.2) of shrubs, grasses, forbs, and weeds was 37, 54, 9, and 0 percent respectively, which is similar to ESD estimates of composition by weight (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 1.3b). Total vegetation production and composition is appropriate for all key areas within the south snow creek seeding. Utilization levels were heavy (74%) in 2003, but have been appropriate the remainder of the time since 1994 (Appendix I, 1.4). Licensed livestock use levels were 51.4 percent of permitted use from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, key area 23 appeared stable with shrubs (mostly Wyoming big sagebrush) increasing and crested wheatgrass decreasing at natural succession

rates. Vegetation structure and distribution within the west snow creek seeding is appropriate based on professional observation.

The Paris seeding is failing to achieve the standard. Vegetation cover measured at key areas 4, 5, and 7 within this pasture was 19, 25, and 14 percent, respectively, which is within or exceeds the range presented in the ESD's (10-20%) (Appendix I, Table 1.2). Production at key areas 4, 5, and 7 was 751, 1,172, and 1,051 lbs/acre respectively, which exceeds the range presented in the ESD's (i.e. 200-600, 200-600, and 400-800 lbs/acre) (Appendix I, Table 1.3a). Key area 4 had a shrub, grass, forb, and weed composition by weight of 87, 12, 1, and 0 percent, respectively, which diverges from ESD estimates of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 5 was 62, 38, 0, and 0 percent respectively, which is comparable to ESD estimates (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 7 had a shrub, grass, forb, and weed composition by weight of 57, 40, 2, and 0 percent, respectively, which is comparable to ESD estimates (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 1.3b). Total vegetation production is appropriate for all key areas within the Paris seeding. However, since this site is a crested wheatgrass seeding and a large amount of grass cover is desired, composition is skewed towards the shrub component. Utilization levels have been heavy within this pasture since 1994 (Appendix I, Table 1.4). Licensed livestock use was 39.4 percent of permitted use from 2000 to 2008, with no use occurring in 2008 or 2009 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, at key areas 4, 5, and 7, shrubs have increased (mostly Wyoming big sagebrush and some rabbitbrush) and crested wheatgrass has decreased at increased rates. Vegetation structure and distribution within the Paris seeding is appropriate based on professional observation.

The slough/meadows pasture is achieving the standard. Vegetation cover measured in 2009 at key areas 6 and 9 was 51 and 91 percent, respectively, which is below the range and exceeds the range presented in the ESD, respectively (60-80%) (Appendix I, Table 1.2). Shrub, grass, forb, and weed composition by cover (Appendix I, Table 1.2) for key area 6 was 0, 98, 2, and 0 percent respectively, which is similar to compositional weight estimates presented in the ESD (3% shrubs, 95% grasses, 2% forbs) (Appendix I, Table 1.3b). Key area 9 had a shrub, grass, forb, and weed composition by cover of 0, 93, 7, and 0 percent (Appendix I, Table 1.2), respectively, which is similar to ESD estimates (i.e. 3% shrubs, 95% grasses, 2% forbs) (Appendix I, Table 1.3b). Cover at key area 6 maybe below estimates presented in the ESD due to micro-site variation (e.g. drier, near the transition boundary to uplands, soil variation, etc.). Vegetation composition is appropriate for key areas 6 and 9. Utilization has not exceeded moderate levels (41-60%) since 1994 (Appendix I, Table 1.4). Licensed livestock use within this pasture was 83.6 percent of permitted use from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, key areas 6 and 9 appeared stable. Vegetation structure and distribution within the slough/meadows pasture is appropriate for the site based on professional observation.

The telegraph pasture is not achieving the standard. Vegetation cover measured at key areas 27, 28, and 29 within this pasture was 75, 29, and 64 percent, respectively, which exceeds the range presented in the ESD's (not estimated, 15-20%, and 25-35%) (Appendix I, Table 1.2). Key area 27 had a shrub, grass, forb, and weed composition by cover of 67, 7, 0, and 25 percent

(Appendix I, Table 1.2), respectively, which diverges from compositional weight estimates presented in the ESD of 30 percent shrubs, 60 percent grasses, and 10 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by cover for key area 28 was 45, 35, 19, and 0 percent respectively, which is comparable to ESD estimates (45% shrubs, 45% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 29 had a shrub, grass, forb, and weed composition by cover of 60, 16, 23, and 0 percent, respectively, which differs from ESD estimates (i.e. 40% shrubs, 50% grasses, 10% forbs) (Appendix I, Table 1.3b). Utilization has not exceeded light levels (21-40%) at key areas since 1994 (Appendix I, Table 1.4). Licensed livestock use was 66.2 percent of permitted use from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, the telegraph pasture appears stable at key areas 27, 28, and 29; however cheatgrass has been present at key area 27 since 1993. One fire at this key area could result in a cheatgrass dominant site. Within the telegraph pasture, much habitat diversity exists. Therefore, vegetation structure and distribution are appropriate based on professional observation.

The hunter point pasture is failing to achieve the standard. Vegetation cover measured at key areas 1, 10, 19, 20, 21, 22, 25, and 26 within this pasture was 38, 21, 37, 29, 24, 13, 23 and 37 percent, respectively, which exceeds the range presented in the ESD's (10-20%, 10-20%, 10-20%, 10-20%, 10-20%, 5-10%, 10-20%, 10-20%,) (Appendix I, Table 1.2). Production at key areas 1 and 21 was 506 and 820 lbs/acre respectively, which is within the range presented in the ESD (i.e. 400-900 lbs/acres) (Appendix I, Table 1.3a). Key area 1 had a shrub, grass, forb, and weed composition by weight of 90, 10, 0, and 0 percent, respectively, which diverges from estimates presented in the ESD of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by cover for key area 10 was 86, 14, 0, and 0 percent respectively, which departs from composition by weight estimates presented in the ESD (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 19 had a shrub, grass, forb, and weed composition by cover of 97, 3, 0, and 0 percent (Appendix I, Table 1.2), respectively, which deviates from composition by weight estimates presented in the ESD (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 20 had a shrub, grass, forb, and weed composition by cover of 94, 3, 0, and 3 percent, (Appendix I, Table 1.2) respectively, which diverges from weight estimates presented in the ESD of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 21 was 98, 2, 0, and 0 percent respectively, which diverges from ESD estimates (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 22 had a shrub, grass, forb, and weed composition by cover of 97, 3, 0, and 0 percent (Appendix I, Table 1.2), respectively, which departs from weight estimates presented in the ESD (i.e. 80% shrubs, 15% grasses, 5% forbs) (Appendix I, Table 1.3b). Key area 25 had a shrub, grass, forb, and weed composition by cover of 100, 0, 0, and 0 percent (Appendix I, Table 1.2), respectively, which deviates from ESD estimates of composition by weight (i.e. 45% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 26 had a shrub, grass, forb, and weed composition by cover of 95, 3, 3, and 0 percent, (Appendix I, Table 1.2) respectively, which diverges from weight estimates presented in the ESD of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 1.3b). Average utilization measured across all key areas from 1993 to 2008 was 33% (Appendix I, Table 1.4). From 1993 to 2008, average utilization measured at key area 1, 10, 19, 20, 21, 22, 25, and 26 was 29, 45, 25, 30, 18, 42, 30, and 36 percent respectively (Appendix I, Table 1.4). Licensed livestock use was 67.2 percent of

permitted use from 2000 to 2008 (Appendix I, Table 2.4). In reviewing photographs from 1993 to 2009, the majority of key areas (i.e. 1,10,21,22,25,26) within the hunter point pasture appear stable. Based on these photographs, there has been a slight decrease in grasses. At key areas 19 and 20, an increase in halogeton has occurred. Both sites remain dominated by winterfat, with small halogeton patches occurring throughout the winterfat alliance. Vegetation distribution is appropriate in areas retaining native vegetation based on professional observation. However, small patches of halogeton occur throughout this pasture. Based on professional observation, areas within this pasture lack appropriate vegetation structure. Much of the area is dominated by the shrub life form, while grasses, and forbs are limiting. Additionally, many of the sagebrush stands are near monoculture's of the same cohort, with little regeneration occurring.

The butte valley pasture is failing to achieve the standard. Vegetation cover measured at key areas 2, 3, 14, 15, 16, 17, 18, 30, and 31 within this pasture was 59, 28, 28, 29, 9, 38, 22, 48 and 54 percent, respectively, which is within or exceeds the range presented in the ESD's (5-10%, 10-20%, 10-20%, 5-10%, 5-10%, 10-20%, 10-20%, 5-10%, 20-30%) (Appendix I, Table 1.2). Production at key areas 3, 14, 17, 18, and 31 was 946, 1,154, 990, 531, and 1,422 lbs/acre respectively, which is within or exceeds the range presented in the ESD (400-900 lbs/acre) (Appendix I, Table 1.3a). Key area 2 had a shrub, grass, forb, and weed composition by cover (Appendix I, Table 1.2) of 13, 2, 0, and 85 percent, respectively, which diverges from weight estimates presented in the ESD of 80 percent shrubs, 15 percent grasses, and 5 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by weight for key area 3 was 100, 0, 0, and 0 percent respectively, which departs from ESD estimates (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 14 had a shrub, grass, forb, and weed composition by weight of 99, 1, 0, and 0 percent (Appendix I, Table 1.2), respectively, which deviates from ESD estimates (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 15 had a shrub, grass, forb, and weed composition by cover of 53, 0, 0, and 47 percent, (Appendix I, Table 1.2) respectively, which diverges from weight estimates presented in the ESD of 80 percent shrubs, 15 percent grasses, and 5 percent forbs (Appendix I, Table 1.3b). Shrub, grass, forb, and weed composition by cover (Appendix I, Table 1.2) for key area 16 was 100, 0, 0, and 0 percent respectively, which diverges from weight estimates presented in the ESD (80% shrubs, 15% grasses, 5% forbs) (Appendix I, Table 1.3b). Key area 17 had a shrub, grass, forb, and weed composition by weight of 89, 4, 0, and 7 percent, respectively, which departs from ESD estimates (i.e. 35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 18 had a shrub, grass, forb, and weed composition by weight of 93, 4, 0, and 0 percent, respectively, which deviates from ESD estimates (i.e. 35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 1.3b). Key area 30 had a shrub, grass, forb, and weed composition by cover of 0, 8, 0, and 92 percent, (Appendix I, Table 1.2) respectively, which diverges from weight estimates presented in the ESD of 80 percent shrubs, 15 percent grasses, and 5 percent forbs (Appendix I, Table 1.3b). Key area 31 had a shrub, grass, forb, and weed composition by weight of 0, 86, 8, and 6 percent, respectively, which departs from ESD estimates (i.e. 35% shrubs, 60% grasses, 5% forbs) (Appendix I, Table 1.3b). However, since this site burned in the Cherry Creek fire in 2000, it is expected that grasses are dominant followed by forbs. Cheatgrass comprises the entirety of the weed component at key area 31, which often occurs following fires. Average utilization measured across all key areas and for all species combined from 1993 to 2008 was 45% (Appendix I, Table 1.4). From 1993 to 2008, average utilization measured at key area 2, 3, 14, 15, 16, 17, 18, and 30 was 52, 39, 40, 41, 57, 42, 28, and 50 percent respectively (Appendix

I, Table 1.4). Licensed livestock use within the butte valley pasture was 118.8 percent of permitted use from 2000 to 2008 (Appendix I, Table 2.4). In viewing photographs from 1993 to 2009, many key areas (i.e. 3,14,16,18,31) within the butte valley pasture appear stable. Key area 2 also appears stable but has been dominated by halogeton prior to 1993. Since 1993, key area 17 has had a slight increase in halogeton. Also since 1993, key area 15 has had an increase in halogeton and decrease in Indian ricegrass. Key area 30 has been changed from a sickle-saltbush/Indian ricegrass community to a halogeton dominant community since 1993. Vegetation distribution is appropriate in areas retaining native vegetation based on professional observation. However, halogeton dominates small patches throughout this pasture. Based on professional observation, areas within this pasture lack appropriate vegetation structure. Much of the area is dominated by the shrub life form, while grass, and forbs are limiting. Additionally, many of the sagebrush stands are near monocultures of the same cohort, with little regeneration occurring.

In viewing photographs from 1993 to 2009, it was observed that 1999 was an exceptional year for grasses, which coincided with above average spring and summer precipitation. In 2005 and from 1997 to 2000 also appeared to be good grass years, coinciding with above average precipitation years. However, since 2001 grass production has declined, with the exception of year 2005, which coincides with below average precipitation.

Special Status Species

The greater sage-grouse (*Centrocercus urophasianus*) is listed on the BLM sensitive species list in Nevada as a result of requiring special management consideration to promote their conservation and reduce the likelihood and need for future listing under the ESA. It has been identified as an “umbrella” species by the BLM Ely District, and chosen to represent the habitat needs of the sagebrush (*Artemisia* spp.) obligate or sagebrush/woodland dependent guild (BLM 2007; p. 4.7-10). There are 16 leks within the allotment and 5 leks within 3 miles surrounding the allotment according to the NDOW data (2009). Of the leks within the allotment, 10 are active, 2 are inactive, and 4 are of unknown status. Of the leks within 3 miles of the allotment, 3 are active and 2 are of unknown status. Based on data that is coarse in nature that the Nevada Department of Wildlife and Bureau of Land Management (2001) constructed for the 2008 Resource Management Plan, the Medicine Butte Allotment contains nesting, summer brood rearing, and winter habitat (NDOW 2001). The allotment has some of the Buck/Butte Valley/White Pine and the Ruby Valley Population Management Units (PMUs). Cover was measured at random locations within the sagebrush cover type in order to evaluate sage-grouse habitat within the allotment (Appendix I, section 6). Random location plots were divided into valley (MB 1 to 14) and side-slope/ridge-line (MB 15, 16, and Telegraph 3 to 9) categories since relatively large differences occur in vegetation/habitat characteristics and potentials.

Random sites MB 1 to MB 15 occur within valley bottoms. Vegetation cover measured in 2009 at sites MB 1, 3, 5, 8, 10, 12, 13, and 14 was 50, 31, 41, 41, 47, 42, 39, and 51 percent respectively, which exceeds the range presented in the ESD's (10-20%, 20-30%, 10-20%, 10-20%, 10-20%, 10-20%, 10-20%, and 10-20% respectively)(Appendix I, Table 6.2). Random point MB 1 had a shrub, grass, forb, and weed composition by cover of 76, 14, 10, and 0 percent respectively, which diverges from compositional weight estimates presented in the ESD of 45 percent shrubs, 50 percent grasses, and 5 percent forbs (Appendix I, Table 6.2). Shrub, grass,

forb, and weed cover was 45, 8, 6, and 0 percent respectively for MB 1 (Appendix I, Table 6.3). Shrub, grass, forb, and weed composition by cover for random site MB 3 was 51, 33, 15 and 0 percent respectively, which is comparable to weight estimates presented in the ESD (35% shrubs, 60% grasses, 5% forbs) (Appendix I, Table 6.2). Furthermore, cover was 20 percent shrubs, 13 percent grasses, 6 percent forbs, and 0 percent weeds (Appendix I, Table 6.3). Random site MB 5 had a shrub, grass, forb, and weed composition by cover of 85, 15, 0, and 0 percent, respectively, which differs from ESD compositional weight estimates (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover was 41, 7, 0, and 0 percent respectively for MB 5 (Appendix I, Table 6.3). Random point MB 8 had a shrub, grass, forb, and weed composition by cover of 57, 29, 12, and 2 percent respectively, which is comparable to compositional weight estimates presented in the ESD of 45 percent shrubs, 50 percent grasses, and 5 percent forbs (Appendix I, Table 6.2). Furthermore, shrub, grass, forb, and weed cover was 28, 14, 6, and 1 percent respectively. Shrub, grass, forb, and weed composition by cover for random site MB 10 was 70, 26, 4, and 0 percent respectively, which diverges from weight estimates presented in the ESD (45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 6.2). Sixteen percent shrub cover, 6 percent grass cover, 1 percent forb cover and 0 percent weed cover was measured at MB 10 (Appendix I, Table 6.3). Random site MB 12 had a shrub, grass, forb, and weed composition by cover of 83, 13, 4, and 0 percent respectively, which differs from ESD compositional weight estimates (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover for MB 12 was 40, 6, 2, and 0 percent respectively (Appendix I, Table 6.3). Shrub, grass, forb, and weed composition by cover for random site MB 13 was 86, 14, 0, and 0 percent respectively, which diverges from weight estimates presented in the ESD (45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 6.2). Thirty-seven percent shrub cover, 6 percent grass cover, 0 percent forb cover and 0 percent weed cover was measured at MB 13 (Appendix I, Table 6.3). Random site MB 14 had a shrub, grass, forb, and weed composition by cover of 83, 13, 2, and 2 percent respectively, which differs from ESD compositional weight estimates (i.e. 45% shrubs, 50% grasses, 5% forbs) (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover for MB 14 was 45, 7, 1, and 1 percent respectively (Appendix I, Table 6.3). All MB sites are skewed toward the shrub compositional component, while grass composition is below that stated in the ESD's (Appendix I, Table 6.2).

Random sites MB 15, MB 16, and Telegraph 3-9 occur on ridgelines or side-slopes. Vegetation cover measured in 2009 at sites MB 15, MB 16, telegraph 3, telegraph 4, telegraph 5, telegraph 7, telegraph 8, and telegraph 9 was 66, 65, 65, 82, 87, 67, 73, and 69 percent respectively, which exceeds the range presented in the ESD's (5-15%, 35-50%, 15-25%, 35-50%, 15-25%, --, 15-25%, and 15-25% respectively) (Appendix I, Table 6.2). Random point MB 15 had a shrub, grass, forb, and weed composition by cover of 30, 23, 30, and 18 percent respectively, which diverges from compositional weight estimates presented in the ESD of 40 percent shrubs, 55 percent grasses, and 5 percent forbs (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover was 37, 29, 37, and 22 percent respectively for MB 15 (Appendix I, Table 6.3). Shrub, grass, forb, and weed composition by cover for random site MB 16 was 36, 22, 38, and 4 percent respectively, which differs from weight estimates presented in the ESD (35% shrubs, 55% grasses, 10% forbs) (Appendix I, Table 6.2). Furthermore, cover was 28 percent shrubs, 17 percent grasses, 30 percent forbs, and 3 percent weeds (Appendix I, Table 6.3). Random site telegraph 3 had a shrub, grass, forb, and weed composition by cover of 53, 21, 25, and 0 percent,

respectively, which differs from ESD compositional weight estimates (i.e. 20% shrubs, 75% grasses, 5% forbs) (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover was 55, 22, 26, and 0 percent respectively for telegraph 3 (Appendix I, Table 6.3). Random point telegraph 4 had a shrub, grass, forb, and weed composition by cover of 41, 13, 46, and 0 percent respectively, which diverges compositional weight estimates presented in the ESD of 35 percent shrubs, 55 percent grasses, and 10 percent forbs (Appendix I, Table 6.2). Furthermore, shrub, grass, forb, and weed cover was 49, 15, 55, and 0 percent respectively. Shrub, grass, forb, and weed composition by cover for random site telegraph 5 was 42, 33, 26, and 0 percent respectively, which diverges from weight estimates presented in the ESD (20% shrubs, 75% grasses, 5% forbs) (Appendix I, Table 6.2). Fifty-five percent shrub cover, 43 percent grass cover, 34 percent forb cover and 0 percent weed cover was measured at telegraph 5 (Appendix I, Table 6.3). Random site telegraph 7 had a shrub, grass, forb, and weed composition by cover of 41, 8, 51, and 0 percent respectively, which is not accurately represented by an ecological site (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover for telegraph 7 was 43, 8, 54, and 0 percent respectively (Appendix I, Table 6.3). Shrub, grass, forb, and weed composition by cover for random site telegraph 8 was 42, 17, 41, and 0 percent respectively, which diverges from weight estimates presented in the ESD (20% shrubs, 75% grasses, 5% forbs) (Appendix I, Table 6.2). Forty-eight percent shrub cover, 19 percent grass cover, 46 percent forb cover, and 0 percent weed cover was measured at telegraph 8 (Appendix I, Table 6.3). Random site telegraph 9 had a shrub, grass, forb, and weed composition by cover of 50, 9, 41, and 0 percent respectively, which differs from ESD compositional weight estimates (i.e. 20% shrubs, 75% grasses, 5% forbs) (Appendix I, Table 6.2). Shrub, grass, forb, and weed cover for telegraph 9 was 44, 8, 36, and 0 percent respectively (Appendix I, Table 6.3). Random sites MB 15, MB 16, and Telegraph 3-9 are skewed toward the forb and shrub component, while the grass compositional component is below estimates presented in the ESD's.

Results have shown that greater sage-grouse preferentially select sites, as opposed to randomly selecting sites, for specific compositional and structural vegetation attributes that often do not characterize the landscape (Klebenow 1969, Eng and Schladweiler 1972, Ellis et al. 1989, Welch et al. 1991, Drut et al. 1994, Gregg et al. 1994, Sveum et al. 1998a,b). For this reason, caution must be used when comparing attributes measured at random sites to attributes preferentially selected by sage-grouse. All random sites sampled may provide suitable winter habitat as sage-grouse have been reported to occur in greater than 20 percent sagebrush canopy cover (Eng and Schladweiler 1972, Wallested 1975). Shrub cover at valley and side-slope/ridge-line sites is providing adequate nesting shrub cover (Gregg et al. 1994, Sveum et al. 1998b, Delong 1995, Connelly et al. 2000). In addition, approximately 38 percent of the valley sites (i.e. MB 1, 3, and 8) are providing suitable herbaceous cover for breeding and brood rearing habitat (Connelly et al. 2000). These results exceed values of breeding habitat reported by Davies et al. (2006) in Oregon and Northeast Nevada, which estimated that 18 percent of intact, late-seral Wyoming big sagebrush communities provided productive breeding habitat based on guidelines developed by Connelly et al. (2000). Productive brood rearing habitat was measured at 64% of intact, late-seral Wyoming big sagebrush communities in Oregon and Northeast Nevada (Davies et al. 2006), which exceeded values measured in the Medicine Butte Allotment. However, seventy-five percent of adjacent upland sites are providing suitable herbaceous cover for breeding and brood rearing habitat (Gregg et al. 1994, Sveum et al. 1998a, Connelly et al. 2000). Klebenow (1969) reported that sage-grouse broods move up an elevation gradient in response to food

availability, suggesting that birds move to desired habitats in order to achieve the resources necessary for survival. With sage-grouse possessing the ability to move long distances and all habitat components necessary for survival and successful reproduction being provided on the Medicine Butte Allotment, sage-grouse habitat is considered to be adequate.

PART 2. ARE LIVESTOCK A CONTRIBUTING FACTOR TO NOT MEETING THE STANDARDS? SUMMARY REVIEW:

According to the Standards and Guidelines for Nevada's Northeastern Great Basin Area, it must be determined if livestock grazing is a significant factor in the non-attainment of the Standards and Guidelines (BLM 1997).

Standard #1: Upland Sites

The Standard is being achieved.

Standard #2: Riparian and Wetlands

Not Achieving the Standard, but making significant progress toward standard. Livestock are not a causal factor to not achieving the standard. Failure to meet the standard is related to other issues or conditions.

One unnamed spring (ASPEN # 10423) and Pony Springs (4) was assessed and rated in the Functional at Risk category with an upward trend. The unnamed spring lacked adequate vegetation cover to dissipate energies that are associated with increased erosion rates, as a result of wildlife trampling. Additionally, following a burn in 2000, undesirable species (e.g. thistle, mustard, and cheatgrass) established at this site. At Pony Springs, the riparian area has not achieved its potential extent and flow patterns have been altered as a result of trampling by wild horses. The allotment is not in conformance with the guidelines since wild horses are contributing to Pony Springs failing to meet PFC. However, a wild horse gather bringing the population down to AML will result in conformance with the guidelines.

Westside spring development was assessed as Functional at Risk with a downward trend as a result of the riparian area not achieving its potential extent, flow patterns being altered, and the lack of adequate vegetation cover present to dissipate energies associated with increased erosion rates. Wildlife hoof action was noted as the casual factor.

White rock spring was rated as Not Functioning because: water fluctuation levels are excessive; the potential extent has not been achieved; flow patterns have been altered by hoof action; there is a lack of adequate vegetation cover present to dissipate energies associated with increased erosion rates; soil saturation is insufficient to maintain hydric soil properties; and excessive erosion is occurring due to the lack of vegetation cover. Wild horses use this area and are the primary casual factor to not functioning. However, this site will be fenced in the summer of 2010 with the objective to improve the riparian area to one that is in properly functioning condition.

Standard #3: Habitat

The Standard is not achieved across the allotment as a whole; however, some pastures are achieving the standard. The allotment is failing to achieve the habitat standard, and not making significant progress toward the standard as a result of skewed vegetation composition and structure. Livestock are a contributing causal factor to not achieving the standard in combination with other issues and conditions. As such, management on the allotment is not conforming to the guidelines.

The north snow creek seeding pasture is achieving the standard.

The south snow creek seeding is achieving the standard.

The west snow creek seeding pasture is achieving the standard.

The Paris seeding is failing to achieve the standard as a result of the slightly skewed distribution towards the shrub compositional component. In viewing photographs from 1993 to present (Appendix I, section 3), shrubs have increased (mostly Wyoming big sagebrush and some rabbitbrush) and crested wheatgrass has decreased at rates above natural succession rates, based on professional observation. The heavy utilization levels on crested wheatgrass from 1992 to present (Appendix I, Table 1.4) may explain the decrease in the crested wheatgrass component and increase in the shrub component. With licensed livestock use at 39.4 percent of permitted use from 2000 to 2008 and based on field notes (Appendix I, Table 1.4), excessive utilization levels are primarily associated with wild horse use. Therefore, livestock are not considered to be a significant causal factor to not achieving the standard. In addition, below average precipitation in the past eight years may be further exacerbating the trend towards more shrubs and fewer grasses (Appendix I, Table 4.1 and Graph 4.1).

The slough/meadows pasture is achieving the standard.

The telegraph pasture is failing to achieve the standard as a result of the skewed composition toward the shrub component at key areas 27 and 29. Additionally, key area 27 has 25 percent cheatgrass cover, posing a community conversion risk to a cheatgrass monoculture following potential future fires. Livestock are not considered to be a causal factor to the skewed distribution since utilization levels have been light and licensed livestock use has been appropriate. Causal factors to the skewed composition distribution are assumed to be a result of vegetation communities being near or at the potential natural community (i.e. with the exception of cheatgrass), which is not illustrated in ESD estimates.

The hunter point and butte valley pastures are failing to achieve the standard as a result of a lack of structural diversity within many sagebrush stands, and a slight increase in the number and size of halogeton patches. Additionally, vegetation across these pastures is skewed towards the shrub compositional component and away from the herbaceous component. In viewing photographs from 1993 to 2009, it was observed that 1999 was an exceptional year for grasses, which coincided with above average spring and summer precipitation. In 2005 and from 1997 to 2000 also appeared to be good grass years, coinciding with above average precipitation years. However, since 2001 grass production has declined, with the exception of year 2005, which

coincides with below average precipitation (Appendix I, sections 3 and 4). As such, it is observed in the photographs that grasses and shrubs wax and wane as a function of precipitation amounts and timing. The skewed composition presented in this data set is a function of a one point in time assessment, conducted at a point in time where recent (i.e. the last 10 years) weather patterns favor shrubs over herbaceous species. The skewed composition is a component that is in flux and naturally occurs. When in combination with excessive utilization levels on grasses, skewed composition is further exacerbated and moved outside natural variability levels. In addition, a lack of structural diversity occurs within many sagebrush stands through both pastures, based on professional observation. Many of the sagebrush stands are near monocultures of the same cohort, with little regeneration occurring. This lack of herbaceous species and sagebrush regeneration can be partly attributed to a lack of disturbance (e.g. fire). Additionally, historical (> 50 years ago) overgrazing may have removed much of the understory herbaceous species, which is currently lacking. Failing to achieve the standard is also a result of an increase in the number and size of halogeton patches within the hunter point pasture (Appendix I, section 3). This may be attributed to localized disturbance at the halogeton patch site. Such a localized disturbance may be the result of horses pawing at the ground, removing the snow in order to access feed during the winter season. However, it is not clear the cause of such localized disturbance. On average, light (1-20%) to moderate (41-60%) utilization levels and licensed livestock 67.2 percent of permitted use from 2000 to 2008 have been appropriate. Therefore, livestock are not considered to be a significant causal factor to not achieving the standard in the hunter pasture. Failing to achieve the standard within the butte valley pasture is also a result of halogeton increases, with key area 30 converting to a halogeton dominant site since 1993. Halogeton is not considered a competitive species (Kitchen and Jorgensen 2001, Young 2002); however, when resources (e.g. nutrients, water, etc.) become available following a disturbance, halogeton responds by acquiring resources and establishing on a site (Kitchen and Jorgensen 2001, Young 2002). Such a disturbance associated with excessive utilization by wildlife, wild horses, and livestock, which releases resources (i.e. nutrients, water, etc.), may be leading to the increased halogeton presence viewed in photographs. With licensed livestock use 118.8 percent of permitted use from 2000 to 2008 and heavy and severe utilization occurring, livestock may be a contributing factor to the slight increase in halogeton. Additionally, when the wild horse population is in excess of the Appropriate Management Level, (AML) (AML is 250 - 518 animals) they contribute to excessive utilization levels.

PART 3. GUIDELINE CONFORMANCE REVIEW AND SUMMARY

Standard #1: Upland Sites

The allotment is conforming to the guidelines.

Standard #2: Riparian and Wetlands

The allotment is not conforming to the guidelines:

At Pony Springs, the riparian area has not achieved its potential extent and flow patterns have been altered as a result of trampling by wild horses. The allotment is not in conformance with the guidelines since wild horses are contributing to Pony Springs failing to achieve the riparian standard. However, a wild horse gather bringing the population down to AML will result in conformance with the guidelines.

Standard #3: Habitat

The allotment is not conforming to the guidelines:

Since livestock and wild horses are contributing factors to degraded habitat, the allotment is not conforming to the guidelines. As a result of the wild horse population exceeding the appropriate management level and excessive utilization occurring within the Pony Mountain/Paris seeding, Butte Valley, and Hunter Point pastures, the allotment is not conforming to the guidelines. Furthermore, poor livestock distribution and heavy utilization levels in the Butte Valley pasture are leading to guideline non-conformance. With a wild horse gather bringing the population down to AML and the issuance of a new term grazing permit with terms and conditions addressing the distribution and utilization issues will result in conformance with the guidelines.

PART 4. MANAGEMENT PRACTICES TO CONFORM WITH GUIDELINES AND ACHIEVE STANDARDS

Allotment Management Plan

- I. The allotment goal is to use grazing animals to promote sustainable, healthy, productive, and diverse populations of desirable plants and plant communities, providing for multiple-use benefits.
- II. Objectives were established at all key areas in order to measure management success. Cover objectives were selected instead of production objectives since cover is less sensitive to precipitation variation from year to year. These objectives were developed based on 2009 monitoring data and estimates from the ESD's. When comparing monitoring data to these objectives, the BLM must consider that these cover values were measured during a productive year. Objective values presented below reflect parameters that should be achievable during normal and above normal precipitation years. These objectives only apply for a 10 year period, at which time an evaluation will decide if objectives are achieved or not. In evaluating objective achievement/failure, precipitation data must be considered. If the objectives are not achieved, then the cause must be stated. If grazing is the cause of not achieving the following objectives, then management changes need to be made.

Winterfat and Indian ricegrass ecological sites (028BY084NV)

- A. Key Area's 1, 3, 10, 14, 18, 19, 21, 25, and 26:
 1. Objective 1: Maintain \geq 14% winterfat cover.
 2. Objective 2: Maintain \leq 3% halogeton cover (currently 0% cover).
- B. Key Area 17:
 1. Objective 1: Maintain \geq 15% winterfat cover (currently 25% cover).
- C. Key Area 20:
 1. Objective 1: Maintain \geq 18% winterfat cover (currently 29% cover).
 2. Objective 2: Maintain \leq 3% halogeton cover (currently 1% cover).

Sickle saltbush, western wheatgrass, and Indian ricegrass ecological sites (028BY047NV)

D. Key Area's 16 and 22:

1. Objective 1: Maintain $\geq 5\%$ saltbush cover (currently 9 and 13% cover, respectively).
2. Objective 2: Maintain $\leq 3\%$ halogeton cover (currently 0% cover).

E. Key Area 2:

1. Objective 1: Maintain $\geq 5\%$ saltbush cover (currently 8% cover).

F. Key Area 15:

1. Objective 1: Maintain $\geq 10\%$ saltbush cover (currently 17% cover).

G. Key Area 30:

1. Objective 1: Maintain $\geq 2\%$ grass cover (currently 4% cover, respectively).

Wyoming big sagebrush, Indian ricegrass, and needle-and-thread grass ecological sites (028BY080NV)

H. Key Area 4

1. Objective 1: Maintain $\geq 1\%$ grass cover (currently 2% cover).

I. Key Area 5:

1. Objective 1: Maintain $\geq 4\%$ grass cover (currently 6% cover).

Wyoming big sagebrush, Indian ricegrass, and needle-and-thread grass ecological sites (028BY010NV)

Winterfat and Indian ricegrass ecological sites (028BY084NV)

J. Key Area's 8 and 12:

1. Objective 1: Maintain $\geq 30\%$ grass cover (currently 43 and 53% cover, respectively).

K. Key Area 7:

1. Objective 1: Maintain $\geq 2\%$ grass cover (currently 4% cover).

L. Key Area 13:

1. Objective 1: Maintain $\geq 13\%$ grass cover (currently 18% cover).

M. Key Area 24:

1. Objective 1: Maintain $\geq 6\%$ grass cover (currently 10% cover).

Inland salt grass ecological sites (028BY050NV)

N. Key Area 6:

1. Objective 1: Maintain $\geq 43\%$ native herbaceous cover (currently 50% cover).

O. Key Area 9:

1. Objective 1: Maintain $\geq 60\%$ native herbaceous cover (currently 91% cover).

Other ecological sites (i.e. key areas 27, 28, 29, and 31)

- P. Key Area 27:
- Objective 1: Maintain $\geq 4\%$ native bunchgrass cover (currently 6% cover).
- Q. Key Area 28:
- Objective 1: Maintain $\geq 12\%$ desirable herbaceous cover (currently 17% cover).
- R. Key Area 29:
- Objective 1: Maintain $\geq 22\%$ desirable herbaceous cover (currently 29% cover).
- S. Key Area 31:
- Objective 1: Maintain $\geq 40\%$ desirable herbaceous cover (currently 49% cover).
- III. BLM's responsibilities towards accomplishing goals and objectives, achieving the Northeastern Great Basin Area Standards, and conforming to the guidelines:
- A. Continue monitoring:
- Photographs should be taken at key areas every year.
 - Utilization should be taken every two years; however, it is recommended every year.
 - Cover and production data should be collected once every ten years; however, it is recommended that it is collected every three to five years.
 - New key areas should be established at the north end of Butte Valley.
- IV. Permittee's responsibilities towards accomplishing goals and objectives, achieving the Northeastern Great Basin Area Standards, and conforming to the guidelines are stated below:

A. Mandatory Terms and Conditions (proposed for new permit)

<u>Pasture</u>	<u>Livestock</u>	<u>Kind</u>	<u>Grazing</u>	<u>Grazing</u>	<u>% Public</u>	<u>AUM's</u>
	<u>#</u>		<u>Begin</u>	<u>End</u>	<u>Land</u>	
MEDICINE BUTTE	2765	Sheep	4/15	11/15	100	3909
MEDICINE BUTTE	316	Cattle	3/1	2/28	100	3792

Refer to Appendix II, Figure 5 for current Mandatory Terms and Conditions. 7,701 Active AUMs; 7,473 Suspended AUMs; 15,174 Total AUMs. Changes made to the Mandatory Terms and Conditions include moving 234 sheep AUMs and 235 cattle AUMs from the suspended to active category as a result of the increased forage production from the Cherry Fire (See Appendix III for calculation).

B. Other Terms and Conditions (proposed for new permit)

<u>Pasture</u>	<u>Livestock</u>	<u>Kind</u>	<u>Grazing</u>	<u>Grazing</u>	<u>% Public</u>	<u>AUM's</u>
	<u>#</u>		<u>Begin</u>	<u>End</u>	<u>Land</u>	
BLACK MT./CANYON	151	Sheep	4/15	11/15	100	213
BUTTE VALLEY	317	Sheep	4/15	11/15	100	449
BUTTE VALLEY	65	Cattle	3/1	2/28	100	788

HUNTER POINT	482	Sheep	4/15	11/15	100	681
HUNTER POINT	79	Cattle	9/1	3/31	100	473
CHERRY	188	Sheep	4/15	11/15	100	266
CHERRY	22	Cattle	3/1	2/28	100	267
PONY MT./PARIS SDG.	641	Sheep	4/15	11/15	100	906
SLOUGHS/MEADOWS	113	Cattle	5/1	2/28	100	1130
SNOW CREEK NORTH	31	Sheep	4/15	11/15	100	44
SNOW CREEK SOUTH	14	Sheep	4/15	11/15	100	20
SNOW CREEK NORTH	38	Cattle	4/15	2/28	100	348
SNOW CREEK SOUTH	45	Cattle	4/15	2/28	100	392
SNOW CREEK WEST	24	Cattle	4/15	2/28	100	215
SNOW CREEK NORTH	5	Horse	4/15	2/28	100	53
SNOW CREEK SOUTH	8	Horse	4/15	2/28	100	84
SNOW CREEK WEST	4	Horse	4/15	2/28	100	42
TELEGRAPH	941	Sheep	4/15	11/15	100	1330

Refer to Appendix II, Figure 6 for current Other Terms and Conditions. Changes made to the Other Terms and Conditions include 1) changing the Hunter Point Pasture season of use from 11/1 – 2/28 to 9/1 – 3/31. This will encourage better distribution between pastures by allowing the permittee to make use earlier in the fall before deep snow may restrict access or early in the spring, when enough resources are available for growth following grazing. The current permit restricts use in this pasture to the winter season, when deep snows can restrict access and puts the permittee at risk of losing livestock. As such, heavier use has occurred in Butte Valley with the Hunter Point Pasture being underutilized. 2) Establishing a rest rotation system for cattle/horses within the snow creek seeding pastures (see stipulations below for details). 3) Adding the Cherry Pasture as a new pasture within the Medicine Butte Allotment (Appendix II, Figure 7). It is recommended that the Cherry Fire rehabilitation fence be converted to a permanent fence and managed as a separate pasture since vegetation composition within the burned area is much different than the native shrub and pinion-juniper range surrounding the burn. With the fence converted to a permanent fence as opposed to being removed, there is more strict management control of livestock distribution. Within the Cherry Pasture 267 cattle and 266 sheep AUMs will be established (see Appendix III for calculation). Use restrictions within the cherry pasture will occur to allow for palatable vegetation to complete its lifecycle, promoting regeneration, 4) Reducing AUMs within the Butte Valley Pasture as a result of creating the Cherry Pasture from the Butte Valley Pasture (Appendix II, Figure 7). Thirty-two sheep and 32 cattle AUMs for a total of 64 AUMs will be removed from the Butte Valley Pasture.

1. Permittee agrees to place 453 AUM's of their 906 sheep AUM's in the Paris Seeding/Pony Mountain pasture into voluntary non-use for conservation purposes for a period of 5 years starting 4/15/2011 OR two years following a horse gather, whichever is sooner.
2. Domestic horse use is authorized in all of the Snow Creek Seedings. Total authorized horse use is 180 AUMs. 180 AUMs can be substituted for an equal amount of cattle AUMs in all of the Snow Creek Seedings.

Authorized use by sheep, cattle and domestic horses combined will not exceed the total amount of AUMs authorized for all of the Snow Creek Seedings, which is 1,198 AUMs, as well as remain within the period of use specified above.

3. The following rotation schedule within the Snow Creek Seedings for cattle and/or domestic horses will be:
 - **Year 1:** The North Snow Creek Seeding may be grazed from 4/15 to 7/15; The South Snow Creek Seeding may be grazed from 7/16 to 2/28; The West Snow Creek Seeding must be rested.
 - **Year 2:** The North Snow Creek Seeding must be rested; The South Snow Creek Seeding may be grazed from 4/15 to 7/15; The West Snow Creek Seeding may be grazed from 7/16 to 2/28.
 - **Year 3:** The North Snow Creek Seeding may be grazed 7/16 to 2/28; The South Snow Creek Seeding must be rested; The West Snow Creek Seeding may be grazed from 4/15 to 7/15.
The cycle then will start over.
4. Maintain the Snow Creek Seedings pasture fences and gates to control and restrict the movement of wild horses onto the Snow Creek Seedings and control and restrict the movement of domestic horses out of the Snow Creek Seedings and onto the Triple B Wild Horse Herd Management Area (HMA), which is not part of the Triple B Wild Horse (HMA).
5. The Cherry Pasture cannot be grazed two consecutive years from 3/1 to 7/1.
6. Livestock numbers are flexible as long as permitted use (i.e. AUM's) is not exceeded during the authorized season of use.
7. Permittee, through livestock control, will leave enough photosynthetic material to promote production and re-growth. Maximum utilization levels are as follows:
 - Perennial native grasses: 50% current year's growth
This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.
 - Perennial shrubs and half-shrubs: 50% use on current annual production.
This use level is necessary to allow desirable perennial key browse species to develop branchlets and woody stature able to withstand the pressure of grazing use. Use would be read in April or prior to the spring re-growth. Use during spring contributes to following season's use level.

Crested wheatgrass: 65% current year's growth

This use level is necessary to allow desirable key herbaceous species to 1) develop above ground biomass for protection of soils, 2) to contribute to litter cover, and 3) develop roots to improve carbohydrate storage for vigor, reproduction, and improve/increase desirable perennial cover.

8. Permittee will move livestock to another authorized pasture or from the allotment no later than 5 days following attainment of maximum utilization levels. Any deviation in livestock movement will require authorization from the authorized officer.
9. Salt and/or mineral supplements for livestock must be located at least ½ mile from water sources, riparian areas, winterfat bottoms, sensitive sites, and cultural resource sites. Such supplements may be used to encourage livestock distribution. However, feeding of forage products on public rangelands is prohibited.
10. Permittee must employ short duration grazing where applicable (as opposed to season long or continuous grazing).
This encourages a single defoliation event on a plant, which is much more beneficial to the plant than multiple defoliations. Multiple defoliation events on a plant retard root-growth, causing a decrease in total absorptive surface. Decreasing the total absorptive surface decreases total plant growth and reduces carbohydrate reserves necessary to maintain plant vigor.
11. Sheep and cattle will be moved within and between use areas so that the same area is not being grazed at the same time every year (e.g. avoid using the slough every year during the summer. Some years this pasture should be used during the spring, fall, and winter). *This promotes growth, re-growth, and reproduction within palatable plants.*
12. Permittee and Range Management Specialist must meet on an annual basis to develop a grazing plan for that year prior to the start of the grazing season OR permittee is required to submit advanced billing to ensure licensed livestock use does not exceed appropriate levels.

V. Additional Stipulations Common to All Grazing Allotments:

1. Livestock numbers identified in the Term Grazing Permit are a function of seasons of use and permitted use. Deviations from those livestock numbers and seasons of use may be authorized on an annual basis where such deviations would not prevent attainment of the multiple-use objectives for the allotment.

2. Deviations from specified grazing use dates will be allowed when consistent with multiple-use objectives. Such deviations will require an application and written authorization from the authorized officer prior to grazing use.
3. The authorized officer is requiring that an actual use report (form 4130-5) be submitted within 15 days after completing your annual grazing use.
4. Grazing use will be in accordance with the Standards and Guidelines for Grazing Administration. The Standards and Guidelines have been developed by the respective Resource Advisory Council and approved by the Secretary of the Interior on February 12, 1997. Grazing use will also be in accordance with 43 CFR Subpart 4180 - Fundamentals of Rangeland Health and Standards and Guidelines for Grazing Administration.
5. If future monitoring data indicates that Standards and Guidelines for Grazing Administration are not being met, the permit will be reissued subject to revised terms and conditions.
6. Pursuant to 43 CFR 10.4 (G) the holder of this authorization must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of human remains, funerary objects, sacred objects, or objects of cultural patrimony (as defined at 43 CFR 10.2). Further, pursuant to 43 CFR 10.4 (C) and (D), you must stop activities in the immediate vicinity of the discovery and protect it from your activities for 30 days or until notified to proceed by the authorized officer.
7. The permittee must notify the authorized officer by telephone, with written confirmation, immediately upon discovery of any hazardous or solid wastes as defined in 40 CFR Part 261.
8. The permittee is responsible for all maintenance of assigned range improvements including wildlife escape ramps for both permanent and temporary water troughs.
9. When necessary, control or restrict the timing of livestock movement to minimize the transport of livestock-borne noxious weed seeds, roots, or rhizomes between weed-infested and weed-free areas.

VI. Other Recommendations

- 1) Seeding Maintenance of Snow Creek and Paris Seedings by re-mowing. *The snow creek seedings are increasing in the shrub cover and production at the expense of crested wheatgrass. This is a natural successional process that will continue without a disturbance (e.g. fire) or further treatment. Allowing this succession process to continue beyond a threshold that will require a mowing and*

re-seeding, will result in less predictable results and an increase in cost. In order to maintain the seeding most efficiently, re-mowing is recommended before the grass density decrease due to the shrub increase, crosses the re-seeding threshold.

- 2) Remove excess wild horses. *Excessive wild horse use is currently the result of degraded riparian and upland areas. Removing excess wild horses and managing the population within the AML may alleviate some of these range degradation issues.*
- 3) Prescribed burning or mowing in the decadent sagebrush stands lacking an understory within the Butte Valley and Hunter Point pastures. *Drought, historical overgrazing, and fire suppression has created a disjunction in natural fire regime within these plant communities. The benefits received from a successful prescribed fire may include, but is not limited to: 1) restore the natural functionality of ecosystem processes (i.e. water, nutrient, and energy cycling), 2) restore community resilience, 3) restore the compositional and structural components necessary for providing adequate habitat to a diversity of wildlife species (may be of particular importance to sage-grouse nesting habitat with each pasture containing multiple leks [Connelly et al. 2000]), and 4) provide forage for wildlife, wild horses, and livestock.*

VII. Adaptive Management

- A. Adaptive management will be employed as part of this allotment management plan. Adaptive management conforms with the Ely District Approved Resource Management Plan which states:

“The Interior Departmental Manual 516 DM 4.16 defines adaptive management as “a system of management practices based on clearly identified outcomes, monitoring to determine if management actions are meeting outcomes and, if not, facilitating management changes that would best ensure that outcomes are met or re-evaluate the outcomes.” The Ely District Office recognizes that specific knowledge regarding natural resource systems is sometimes uncertain and in those situations, adaptive management is the preferred management method.

Adaptive management is a formal, systematic, and rigorous approach to learning from the result of management actions, accommodating change, and improving management. It involves synthesizing existing knowledge, exploring alternative actions, and making explicit forecasts about their results. Management actions and monitoring programs are carefully designed to generate reliable feedback and clarify the reasons underlying results. Actions and objectives are then adjusted based on this feedback and improved understanding. In addition, decisions, actions, and results are carefully documented and communicated to others, so that knowledge gained through experience is passed on rather than lost when individuals move or leave the organization.

Goals, objectives, special designations, and allocations could not be changed through adaptive management. Plan amendments would be required to change these decisions. Implementation or activity level decisions could be adapted. Future activity level plans would follow NEPA procedures and involve the public.”

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APPENDIX I

DATA SUMMARY

1. KEY AREAS AND ECOLOGICAL SITES

A key area is a relatively small portion of a pasture or allotment selected because of its location, use, or grazing value as a monitoring point for grazing use. It is assumed that key areas, if properly selected, will reflect the current grazing management over the pasture or allotment as a whole (NRCS 1997). Key areas represent range conditions, trends, seasonal degrees of use, and resource production and values. Table 1.1 depicts the Medicine Butte Allotment key area ecological sites and dominant native vegetation associated with each site.

Table 1.1 Medicine Butte allotment Key Areas

<u>Key Area</u>	<u>Ecological Site</u>	<u>Dominate Species</u>
1,3,10,14,17-21,25,26	Coarse Silty 6-8 P.Z. (028BY084NV)	winterfat, Indian ricegrass
2,15,16,22,30	Saline Terrace 5-8 P.Z. (028BY047NV)	sickle saltbush, western wheatgrass, Indian ricegrass
4,5	Loamy 8-10 P.Z. (028BY080NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
6,9	Wet Sodic (028BY050NV)	inland saltgrass
7,8,11,12,13,23,24	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
27	PIMO-JUOS WSG:OR0501 (028BY062NV)	single leaf pinyon, utah juniper, mountain big sagebrush, bluebunch wheatgrass, Thurber's needlegrass
28	Calcareous Mountain Ridge (028BY048NV)	black sagebrush, bluebunch wheatgrass
29	Loamy Slope 12 -16 P.Z. (028BY015NV)	mountain big sagebrush, bluebunch wheatgrass
31	Calcareous Loam (028BY094NV)	mountain big sagebrush,wyoming big sagebrush, bluebunch wheatgrass, indian ricegrass

An ecological site is a distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation (NRCS 1997). Ecological Site Descriptions (ESD) are used for inventory, evaluation, and management of native vegetation communities. The ecological site of a key area is determined based on several factors including soils, topography, and plant community.

1.2. COVER

Foliar cover was measured at all key areas in 2009 using the line-point intercept method (Table 1.2). Foliar cover is the percent of ground covered by a vertical projection of the aerial portions of the plants (USDA — USFS, NRCS, USDI — BLM, 1996). The line-point intercept method is a commonly used method for determining the relative percent live foliar cover of a range site by plant class (tree, shrub, grass, forb) or by plant species. Results can be interpreted in a general rangeland health framework and/or compared to the ESD's estimated cover values.

Table. 1.2 Vegetation cover measured in 2009 and estimates from the Ecological Site Description (ESD).

Key Area	Estimated Ground Cover	Ground Cover Measured	Composition by cover measured in			
	from ESD	in 2009	2009			
			Shrubs	Grasses	Forbs	Weeds*
1	10-20%	38	100%	0%	0%	0%
2	5-10%	59	13%	2%	0%	85%
3	10-20%	28	100%	0%	0%	0%
4	10-20%	19	90%	10%	0%	0%
5	10-20%	25	74%	22%	4%	0%
6	60-80	51	0%	98%	2%	0%
7	10-20%	14	71%	29%	0%	0%
8	10-20%	49	10%	88%	2%	0%
9	60-80	91	0%	93%	7%	0%
10	10-20%	21	86%	14%	0%	0%
11	10-20%	36	38%	55%	7%	0%
12	10-20%	49	8%	85%	2%	5%
13	10-20%	30	47%	53%	0%	0%
14	10-20%	28	93%	7%	0%	0%
15	5-10%	29	53%	0%	0%	47%
16	5-10%	9	100%	0%	0%	0%
17	10-20%	38	64%	15%	0%	21%
18	10-20%	22	100%	0%	0%	0%
19	10-20%	37	97%	3%	0%	0%
20	10-20%	29	94%	3%	0%	3%
21	10-20%	24	96%	4%	0%	0%
22	5-10%	13	100%	0%	0%	0%
23	10-20%	35	37%	54%	9%	0%
24	10-20%	28	52%	30%	18%	0%
25	10-20%	23	100%	0%	0%	0%
26	10-20%	37	95%	3%	3%	0%
27	--	75	67%	7%	0%	25%
28	15-20%	29	45%	35%	19%	0%
29	25-35%	64	60%	16%	23%	0%
30	5-10%	48	0%	8%	0%	92%
31	20-30%	54	2%	80%	7%	11%

*Includes: Halogeton, bur buttercup, cheatgrass

Cover values at key areas measured in 2009 commonly exceeded cover values presented in the ESD. However, the composition by cover was generally skewed towards shrubs and away from the herbaceous component (grasses and forbs).

1.3. WEIGHT

Above ground annual production was estimated in 2009 using the double weight sampling method (Table 1.3a). Above ground annual production is the amount of air dry biomass (lbs/acre) produced annually. The double weight sampling method is a commonly used method for estimating the annual production amount for a range site by plant class (tree, shrub, grass, forb) or by plant species (Table 1.3b). Results can be interpreted in a general rangeland health framework and/or compared to the ESD's estimated production values.

Table 1.3a Annual production measured in 2009 and estimates from the Ecological Site Description (ESD).

Key Area	<u>Estimated Annual Production</u>			<u>*Measured Annual</u>
	<u>from ESD*</u>			<u>Production from 2009</u>
	<u>Favorable</u>	<u>Normal</u>	<u>Unfavorable</u>	
1	900	700	400	506
2	500	350	200	--
3	900	700	400	946
4	600	400	200	751
5	600	400	200	1172
6	1200	1000	800	--
7	800	600	400	1051
8	800	600	400	1161
9	1200	1000	800	--
10	900	700	400	--
11	800	600	400	1027
12	800	600	400	--
13	800	600	400	1350
14	900	700	400	1154
15	500	350	200	--
16	500	350	200	--
17	900	700	400	990
18	900	700	400	531
19	900	700	400	--
20	900	700	400	--
21	900	700	400	820
22	500	350	200	--
23	800	600	400	--
24	800	600	400	827
25	900	700	400	--
26	900	700	400	--
27	1200	900	600	--
28	350	200	100	--
29	1500	1100	700	--
30	500	350	200	--
31	900	700	400	1422

*Annual Production measured in Air Dried Weight (LBS/Acre)

*Includes shrubs, grasses, forbs, and weeds

-- Not measured

Table 1.3b Composition by weight measured in 2009 and from the Ecological Site Description (ESD).

Key Area	Estimated Composition by Weight from ESD			Composition by Weight measured in 2009			
	Shrubs	Grasses	Forbs	Shrubs	Grasses	Forbs	*Weeds
1	35%	55%	10%	90%	10%	0%	0%
2	80%	15%	5%	--	--	--	--
3	35%	55%	10%	100%	0%	0%	0%
4	35%	55%	10%	87%	12%	1%	0%
5	35%	55%	10%	62%	38%	0%	0%
6	3%	95%	2%	--	--	--	--
7	45%	50%	5%	57%	40%	2%	0%
8	45%	50%	5%	30%	70%	0%	0%
9	3%	95%	2%	--	--	--	--
10	35%	55%	10%	--	--	--	--
11	45%	50%	5%	57%	41%	2%	0%
12	45%	50%	5%	--	--	--	--
13	45%	50%	5%	49%	49%	2%	0%
14	35%	55%	10%	99%	1%	0%	0%
15	80%	15%	5%	--	--	--	--
16	80%	15%	5%	--	--	--	--
17	35%	55%	10%	89%	4%	0%	7%
18	35%	55%	10%	96%	4%	0%	0%
19	35%	55%	10%	--	--	--	--
20	35%	55%	10%	--	--	--	--
21	35%	55%	10%	98%	2%	0%	0%
22	80%	15%	5%	98%	2%	0%	0%
23	45%	50%	5%	--	--	--	--
24	45%	50%	5%	24%	47%	29%	0%
25	35%	55%	10%	--	--	--	--
26	35%	55%	10%	--	--	--	--
27	30%	60%	10%	--	--	--	--
28	45%	45%	10%	--	--	--	--
29	40%	50%	10%	--	--	--	--
30	80%	15%	5%	--	--	--	--
31	35%	60%	5%	0%	86%	8%	6%

-- Not measured

*Includes: Halogeton, russian thistle, bur buttercup, cheatgrass

1.4. UTILIZATION

The key forage plant utilization method was used to collect utilization data at the key areas in 2009 (Table 1.4). Utilization is the estimation of the proportion of annual production consumed or destroyed by animals (Swanson 2006). The general utilization objective for all allotments in

the Ely BLM District according to the Ely District Record of Decision and Approved Resource Management Plan (ROD/RMP – August, 2008) is to “Manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health” (Ely RMP, p. 85). The Nevada Rangeland Monitoring Handbook gives guidelines to determine the proper use levels by plant category (grasses, forbs, and shrubs) and by grazing season (spring, summer, fall, winter, yearlong). Proper use levels for all allotments are also implied by the Standards and Guidelines for Rangeland Health and Grazing Administration (February 1997).

Table 1.4 Utilization

Key Area	Key Species	Year	Utilization		Key Area	Key Species	Year	Utilization	
			Percentag	Class				Percentag	Class
1	winterfat	1993	86*	Severe	4	crested wheatgrass	1992	74	Heavy
		1993	16	Slight			1993	80**	Heavy
		1994	54	Medium			1994	68	Heavy
		1995	28	Light			1996	52	Medium
		1996	68	Heavy			1997	68**	Heavy
		1998	10	Slight			1999	68	Heavy
		1999	10	Slight			2000	54	Medium
		2000	50	Medium			2009	34**	Light
		2001	18	Slight	5	crested wheatgrass	1992	76*	Heavy
		2002	24	Light			1992	80*	Heavy
		2004	16**	Slight			1993	86**	Severe
		2005	16	Slight			1994	78	Heavy
2	sickle saltbush	1992	84	Severe			1996	60	Medium
		1993	88	Severe			1997	64	Heavy
		1993	10	Slight			1999	72	Heavy
		1994	58	Medium			2000	60	Medium
		1995	86	Severe			2009	39**	Light
		1996	38	Light	6	Saltgrass	1992	44	Medium
		1998	20	Slight			1993	50	Medium
		1999	12	Slight			1994	56	Medium
		2000	22	Light	7	crested wheatgrass	1992	72**	Heavy
		2001	48	Medium			1993	68**	Heavy
		2002	56	Medium			1994	46	Medium
		2004	88	Severe			1996	40	Light
		2005	66	Heavy			1997	66**	Heavy
3	winterfat	1992	50	Medium			1999	56	Medium
		1993	68	Heavy			2000	52	Medium
		1993	14	Slight			2009	77**	Heavy
		1995	18	Slight	8	crested wheatgrass	1992	44**	Medium
		1996	30	Light			1994	10	Slight
		1998	10	Slight			1994	46	Medium
		1999	10	Slight			1998	64	Heavy
		2000	34**	Light			1999	66	Heavy
		2001	56	Medium			2000	50	Medium
		2003	60	Medium			2002	74	Heavy
		2004	54	Medium			2004	56	Medium
	Squirreltail	2001	68	Heavy			2005	30	Light
		2000	12**	Slight			2009	9	Slight
	sickle saltbush	1993	10	Slight	9		1992	48**	Medium
		1995	62	Heavy					

**None from cattle or sheep; all from wild horses and wildlife.

*Lots of horse use noted

Table 1.4 Utilization (continued)

Key Area	Key Species	Year	Utilization		Key Are.	Key Species	Year	Utilization	
			Percentag	Class				Percentag	Class
10	winterfat	1993	88	Severe	15	sickle saltbush	2004	44	Medium
		1993	26	Light			2005	44	Medium
		1994	84	Severe			1995	46	Medium
		1996	66	Heavy			1996	62	Heavy
		1998	24	Light			1998	20	Slight
		1999	60*	Medium			1999	12	Slight
		2000	34	Light			2000	10	Slight
		2001	44	Medium			2001	74	Heavy
		2002	30	Light			2002	56	Medium
		2004	26	Light			2004	70	Heavy
	2005	52	Medium	Squirreltail		1999	14	Slight	
Squirreltail	2000	16	Slight	2000	10	Slight			
	Indian ricegrass	1993	48	Medium	2001	60	Medium		
11	crested wheatgrass				2002	58	Medium		
		1994	20	Slight	16	sickle saltbush	1995	68	Heavy
		1994	32	Light			1996	82	Severe
		1996	42	Medium			1998	16	Slight
		1998	62	Heavy			1999	20	Slight
		1999	44	Medium			2000	54	Medium
		2000	40	Light			2001	88	Severe
		2002	36	Light			2002	58	Medium
		2004	60	Medium			2004	90	Severe
		2005	52	Medium			2005	72	Heavy
	2009	41	Medium	Indian ricegrass/squirreltail			1995	38	Light
12	crested wheatgrass	1994	34	Light		1996	90	Severe	
		1998	58	Medium	1998	10	Slight		
		1999	62	Heavy	1999	42	Medium		
		2000	52	Medium	2000	33	Light		
		2002	76	Heavy	2001	56	Medium		
		2005	62	Heavy	2002	56	Medium		
13	crested wheatgrass	1994	36	Light	2004	88	Severe		
		1998	58	Medium	2005	60	Medium		
		1999	70	Heavy	17	winterfat	1995	46	Medium
		2009	10	Slight			1996	54	Medium
14	winterfat	1995	80	Heavy			1998	17	Slight
		1996	62	Heavy			1999	18	Slight
		1998	14	Slight			2000	38	Light
		1999	16	Slight			2001	46	Medium
		2000	32	Light			2002	28	Light
		2001	46	Medium			2004	40	Light
2002	18	Slight	2005	16			Slight		

**None from cattle or sheep; all from wild horses and wildlife.

*Lots of horse use noted

Table 1.4 Utilization (continued)

Key Area	Key Species	Year	Utilization	Key Area	Key Species	Year	Utilization
			Percentag Class				Percentag Class
	Indian ricegrass/squirreltail	1995	64 Heavy			2000	21 Light
		1996	90 Severe			2001	10 Slight
		2000	10 Slight			2002	18 Slight
		2001	58 Medium			2004	10 Slight
		2002	60 Medium			2005	12** Slight
18	winterfat	1995	44 Medium	22	sickle saltbush	1995	84 Severe
		1996	44 Medium			1996	76 Heavy
		1998	18 Slight			1998	66 Heavy
		1999	10 Slight			1999	14 Slight
		2000	12 Slight			2000	52 Medium
		2001	46 Medium			2001	14 Slight
		2002	18 Slight			2002	18 Slight
		2004	30 Light			2004	48 Medium
		2005	16 Slight			2005	10 Slight
	Squirreltail	2000	10 Slight	23	crested wheatgrass	1994	24 Light
		2001	62 Heavy			1999	36 Light
19	winterfat	1995	70 Heavy			2000	48 Medium
		1996	40 Light			2002	60 Medium
		1998	22 Light			2003	74 Heavy
		1999	10 Slight			2005	38 Light
		2000	14 Slight	24	crested wheatgrass	1994	20 Slight
		2001	16 Slight			1996	44 Medium
		2002	28 Light			1998	48 Medium
		2004	10 Slight			1999	34 Light
		2005	16 Slight			2000	24 Light
20	winterfat	1995	62 Heavy			2002	18 Slight
		1996	42 Medium			2003	46 Medium
		1998	12 Slight			2005	56 Medium
		1999	10 Slight	25	winterfat	1996	78 Heavy
		2000	20 Slight			1998	10 Slight
		2001	16 Slight			1999	38 Light
		2002	40 Light			2000	56* Medium
		2004	36 Light			2001	24 Light
		2005	38** Light			2002	18 Slight
21	winterfat	1995	40 Light			2004	48* Medium
		1996	21 Light			2005	34 Light
		1998	10 Slight		Squirreltail	1998	10 Slight
		1999	10 Slight				

**None from cattle or sheep; all from wild horses and wildlife.

*Lots of horse use noted

Table 1.4 Utilization (continued)

Key Area	Key Species	Year	Utilization	Percentag Class
26	winterfat	1992	56	Medium
		1996	78	Heavy
		1998	14	Slight
		1999	24	Light
		2000	48	Medium
		2001	50	Medium
		2002	22	Light
		2004	16	Slight
		2005	20	Slight
27	Bitterbrush	1996	20	Slight
	Bluebunch wheatgrass	1996	10	Slight
	Mountain big sagebrush	1996	10	Slight
28	Black sagebrush	1996	26	Light
	Bluebunch wheatgrass	1996	12	Slight
29	Serviceberry	1996	40	Light
	Bluebunch wheatgrass	1996	24	Light
30	Indian ricegrass	1997	44	Medium
		1998	62*	Heavy
		1999	50	Medium
		2000	46	Medium
		2001	58	Medium
		2002	46	Medium
		2004	56	Medium
		2005	48	Medium

**None from cattle or sheep; all from wild horses and wildlife.

*Lots of horse use noted

2. LICENSED LIVESTOCK USE

Licensed use from 2001-2008 varied on the Medicine Butte Allotment with the largest licensed use occurring in 2002 when 100.2% actual use of the permitted use occurred (Table 2.1).

Licensed use from 2001-2008 varied by livestock kind (Table 2.2) and across pastures (Table 2.3).

Table 2.1 Actual Animal Unit Months (AUM) licensed between 2000-2008.

Year	Licensed Use	AUMs on permit	% actual use of permitted use
2000	4315	7232	59.7%
2001	5138	7232	71.0%
2002	7245	7232	100.2%
2003	6729	7232	93.0%
2004	5061	7232	70.0%
2005	4225	7232	58.4%
2006	6446	7232	89.1%
2007	6944	7232	96.0%
2008	5119	7232	70.8%

Table 2.2 Actual Animal Unit Months (AUM) licensed by livestock kind between 2000-2008.

Year	<u>Cattle</u>			<u>Sheep</u>			<u>Horse</u>		
	<u>Licensed</u>	<u>AUMs</u>	<u>% actual</u>	<u>Licensed</u>	<u>AUMs</u>	<u>% actual</u>	<u>Licensed</u>	<u>AUMs</u>	<u>% actual use</u>
	<u>Use</u>	<u>on</u>	<u>use of</u>	<u>Use</u>	<u>on</u>	<u>use of</u>	<u>Use</u>	<u>on</u>	<u>of permitted</u>
	<u>Use</u>	<u>permit</u>	<u>use</u>	<u>Use</u>	<u>permit</u>	<u>use</u>	<u>Use</u>	<u>permit</u>	<u>use</u>
2000	3059	3557	86.0%	1256	3675	34.2%	0	180	0.0%
2001	4622	3557	129.9%	1160	3675	31.6%	0	180	0.0%
2002	3280	3557	92.2%	3965	3675	107.9%	0	180	0.0%
2003	3668	3557	103.1%	3028	3675	82.4%	33	180	18.3%
2004	1998	3557	56.2%	3050	3675	83.0%	13	180	7.2%
2005	2214	3557	62.2%	2011	3675	54.7%	0	180	0.0%
2006	3183	3557	89.5%	3513	3675	95.6%	0	180	0.0%
2007	3098	3557	87.1%	3837	3675	104.4%	9	180	5.0%
2008	2518	3557	70.8%	2534	3675	69.0%	67	180	37.2%

Sheep AUMs were controlled by Authorization 2704522 prior to 2002 and by Authorization 2700045 from 2002 to present

Cattle AUMs were controlled by Authorization 2704522 prior to 2004 and by Authorization 2700045 from 2004 to present

Table 2.3 Actual Animal Unit Months (AUM) licensed by pasture and livestock kind from 2000 to 2008.

Pasture	Cattle Licensed		Cattle AUMS on permit	Sheep Licensed		Sheep AUMS on permit	Horse Licensed		Horse AUMS on permit
	Use			Use			Use		
	a	b		a	b		a	b	
No associated pasture	371	82	--	676	225	--	41	5	--
BLACK MT./CANYON	--	--	--	210	23	213	--	--	--
BUTTE VALLEY	974	974	820	787	787	481	--	--	--
HUNTER POINT	613	409	473	412	366	681	--	--	--
PONY MT./PARIS SDG.	--	--	--	643	357	906	--	--	--
SLOUGHS/MEADOWS	945	945	1130	--	--	--	--	--	--
SNOW CREEK NORTH	258	258	401	93	31	44	--	--	--
SNOW CREEK SOUTH	275	275	476	80	35	20	23	5	180
SNOW CREEK WEST	128	128	257	--	--	--	18	4	180
TELEGRAPH	--	--	--	880	880	1330	--	--	--

^a Average for year grazed (Livestock were not grazed every year)

^b Average for 9 year period

Table 2.4 Actual Use by pasture from 2000 to 2008.

Pasture	%actual use of permitted use
BLACK MT./CANYON	11.0%
BUTTE VALLEY	118.8%
HUNTER POINT	67.2%
PONY MT./PARIS SDG.	39.4%
SLOUGHS/MEADOWS	83.6%
SNOW CREEK NORTH	64.9%
SNOW CREEK SOUTH	62.7%
SNOW CREEK WEST	51.4%
TELEGRAPH	66.2%

3. PHOTOGRAPHIC TREND

In reviewing photographs from 1993 to 2009, key area trends appeared stable for the majority of sites. The west snow creek seeding, south snow creek seeding, and south end of the north snow creek seeding remain stable with shrubs (mostly Wyoming big sagebrush and some rabbitbrush) increasing and crested wheatgrass decreasing at natural succession rates. However, at the north end of the north snow creek seeding (i.e. at key area 24) and at all key areas (i.e. 4,5,7) within the Paris seeding, shrubs have increased and crested wheatgrass has decreased at increased rates. This may be attributed to the heavy utilization levels experienced within the Paris seeding. Within the north snow creek seeding (at key area 24), the shrub increase and crested wheatgrass decrease may be attributed to micro-site conditions and recent drought conditions and not to livestock utilization as levels did not exceed moderate.

The slough/meadows pasture (i.e. key areas 6 and 9) appears stable since 1993. The telegraph pasture (i.e. key areas 27, 28, and 29) also appears stable, however cheatgrass has been present at key area 27 since 1993. One fire at this key area could result in cheatgrass dominant site.

The majority of key areas (i.e. 1,10,21,22,25,26) within the hunter point pasture appears stable. There has been a slight decrease in grasses which can be primarily attributed to the recent drought. However, key areas 19 and 20 has had an increase in halogeton. Both sites are still dominated by winterfat with halogeton patches occurring throughout the winterfat alliance.

Key areas (i.e. 3,14,16,18,31) within the butte valley pasture appear stable. Key area 2 also appears stable but has been dominated by halogeton prior to 1993. Since 1993, key area 17 has had a slight increase in halogeton. Also since 1993, key area 15 has had an increase in halogeton and decrease in Indian ricegrass. Key area 30 has been changed from a sickle- saltbush/Indian ricegrass community to a halogeton dominant community since 1993.

Based on reviewing photographs from all key areas, the allotment as a whole appears stable, with a few key areas having some issues. It was observed that 1999 was an exceptional year for grasses, which coincided with above average spring and summer precipitation. In 2005 and from

1997 – 2000 also appeared to be good grass years, coinciding with above average precipitation years. However, since 2001 grass production has declined, with the exception of 2005, which coincides with below average precipitation.

4. PRECIPITATION DATA

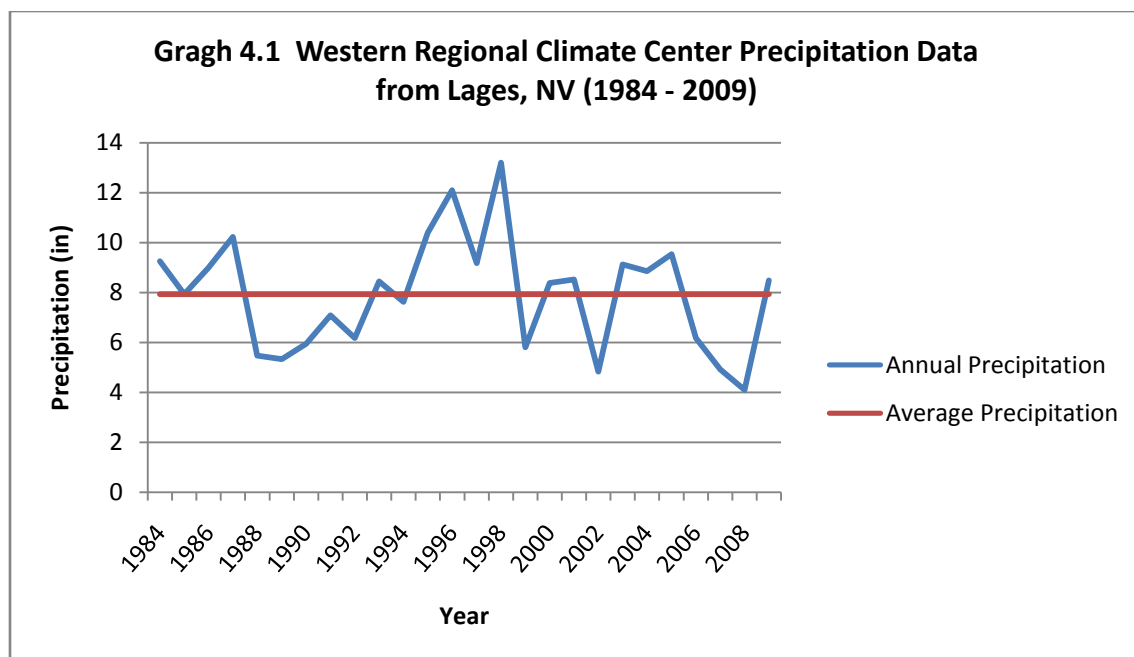
Annual precipitation greatly influences growing condition of forage species and is often correlated to available forage. Historical climate data from the Western Regional Climate Center at the Lages and McGill, Nevada weather stations are being used to represent the annual precipitation on the Medicine Butte Allotment. Tables 4.1 and 4.2 and Graphs 4.1 and 4.2 summarize annual precipitation data collected since 1984 and 1978, respectively. Average precipitation in the past eight years was 7 inches/year at Lages weather station, which is below the average over the 26 year period since the weather station has been in operation. Since 2001 at the McGill weather station, precipitation has been below the 30 year average seven of the past nine years.

Table 4.1 Western Regional Climate Center Precipitation Data from Lages, NV from 1984-2009.

Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)
1984	9.25	1993	8.45	2002	4.83
1985	7.93	1994	7.63	2003	9.13
1986	8.99	1995	10.39	2004	8.85
1987	10.23	1996	12.1	2005	9.54
1988	5.47	1997	9.18	2006	6.18
1989	5.33	1998	13.2	2007	4.92
1990	5.94	1999	5.81	2008	4.1
1991	7.09	2000	8.38	2009	8.48
1992	6.18	2001	8.52		

*January - August

Average = 7.9; Min = 4.1; Max = 13.2

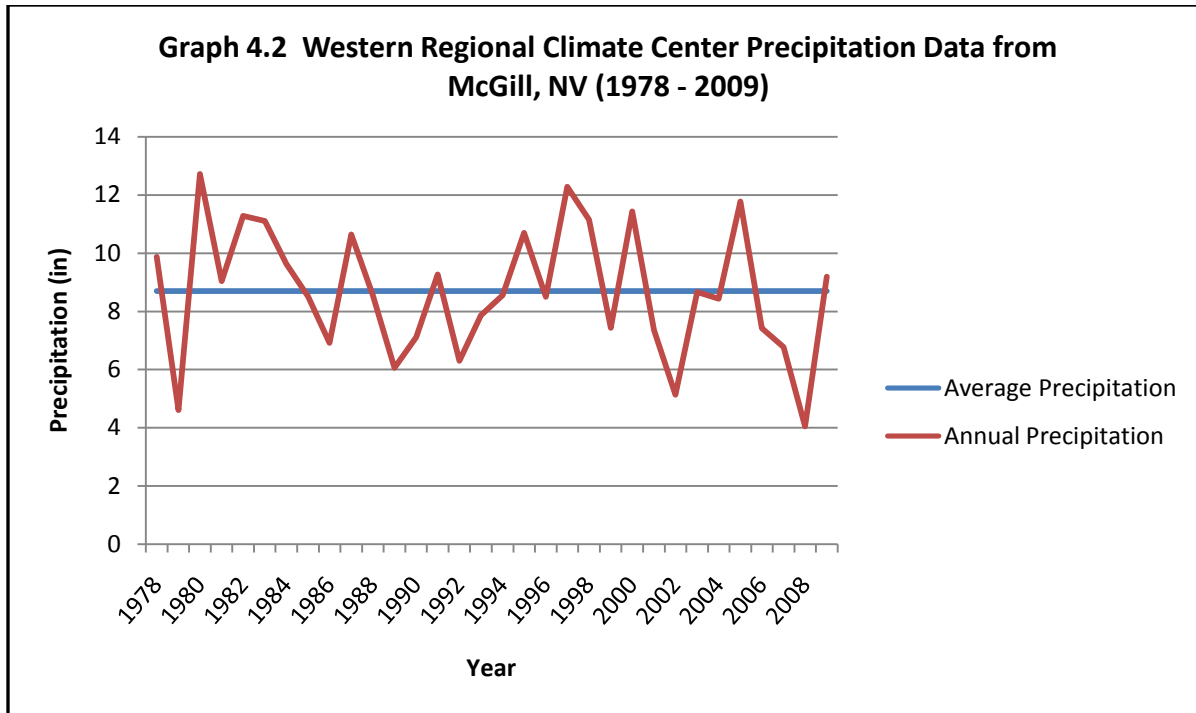


**Table 4.2 Western Regional Climate Center Precipitation Data from
McGill, NV**

Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)	Year	Annual Precipitation (inches)
1978	9.87	1989	6.06	2000	11.43
1979	4.61	1990	7.12	2001	7.36
1980	12.72	1991	9.27	2002	5.14
1981	9.04	1992	6.3	2003	8.66
1982	11.28	1993	7.86	2004	8.43
1983	11.11	1994	8.55	2005	11.78
1984	9.63	1995	10.7	2006	7.42
1985	8.51	1996	8.5	2007	6.78
1986	6.92	1997	12.28	2008	4.05
1987	10.64	1998	11.15	*2009	9.19
1988	8.57	1999	7.43		

*January - August

Average = 8.7; Min = 4.05; Max = 12.72



5. PROPER FUNCTIONING CONDITION

Proper Functioning Condition (PFC) was assessed for the springs and streams within the Medicine Butte allotment in 2009 (Table 2). PFC is the method used by the BLM to assess riparian health and functionality. The process is completed by an interdisciplinary (ID) team. The team looks at hydrology, vegetation, and erosion/deposition characteristics of the site in order to determine if the riparian area is in proper functioning condition, functioning at risk, or nonfunctional.

Table 5.1 Proper Functioning Condition (PFC) ratings for Springs.

<u>NAME</u>	<u>ASPEN #</u>	<u>TYPE</u>	<u>Rating</u>
PIPE SPRING	542	SPRING-DEV	PFC
WESTSIDE SPRING	546	SPRING	PFC
UNNAMED SPRING	near 549	Spring/Stream	PFC
UNNAMED SPRING	834	SPRING	PFC
UNNAMED SPRING	829	SPRING	PFC
UNNAMED SPRING	830	SPRING-DEV	PFC
UNNAMED SPRING	near 549	SPRING	PFC
WHITE ROCK SPRING	849	SPRING-DEV	NF
UNNAMED SPRING	10423	SPRING	FAR: ↑
PONY SPRINGS (4)	10311	SPRING	FAR: ↑
WESTSIDE SPRING	545	SPRING-DEV	FAR: ↓

PFC - Proper Functioning Condition

NF - Not Functioning

FAR: ↑ or ↓ - Functioning at Risk with an upward trend or downward trend.

6. GREATER SAGE-GROUSE HABITAT DATA

The methodology used for selecting random points within sage-grouse habitat is as follows: A sagebrush vegetative cover layer was created in ArcGIS 9.3 by selecting only sagebrush cover types from the complete regap data set. Specifically, the two categories selected were called “Great Basin Xeric Mixed Sagebrush Shrubland” and “Inter-Mountain Basins Big Sagebrush Shrubland”. The resulting layer was further reduced by clipping out all private land parcels. This layer was then clipped by using the allotment of interest. Finally, the ‘create random points’ tool was used within ArcToolbox to generate the desired number of random points within the sagebrush layer within an allotment, which was the constraining feature class during random point generation.

The following instructions were included for those persons sampling vegetation at these random points:

All points should be within sagebrush habitat (i.e. black, Wyoming, Mountain). However, if a point is dominated by trees, low sage, winterfat, a road, or some other inappropriate habitat type for sage-grouse, please document this and move an appropriate distance away in a random direction, or go to the next point on the list.

Table 6.1 Ecological sites of random sagebrush sites sampled within the Medicine Butte allotment.

<u>Site</u>	<u>Ecological Site</u>	<u>Dominate Species</u>
MB -1	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -3	Calcareous Loam (028BY094NV)	mountain big sagebrush,wyoming big sagebrush, bluebunch wheatgrass, indian ricegrass
MB -5	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -8	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -10	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -12	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -13	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -14	Loamy 8-10 P.Z. (028BY010NV)	Wyoming big sagebrush, Indian ricegrass, and needleandthread grass
MB -15 (Paris cr.)	Shallow Calcareous Slope 10-14 P.Z. (028BY008NV)	Black sagebrush, bluebunch wheatgrass, indian ricegrass
MB -16 (Paris cr.)	Loamy 16+ P.Z. ((028BY029NV)	Mountain big sagebrush, mountain brome, and Letterman's needlegrass
Telegraph - 3	Shallow Loam 16+ P.Z. (028BY070NV)	Mountain big sagebrush and bluebunch wheatgrass
Telegraph - 4	Loamy 16+ P.Z. ((028BY029NV)	Mountain big sagebrush, mountain brome, and Letterman's needlegrass
Telegraph - 5	Shallow Loam 16+ P.Z. (028BY070NV)	Mountain big sagebrush and bluebunch wheatgrass
Telegraph - 7	--	--
Telegraph - 8	Shallow Loam 16+ P.Z. (028BY070NV)	Mountain big sagebrush and bluebunch wheatgrass
Telegraph - 9	Shallow Loam 16+ P.Z. (028BY070NV)	Mountain big sagebrush and bluebunch wheatgrass

Table 6.2 Vegetation cover and composition measured in 2009 at random sagebrush sites and estimates from the Ecological Site Description (ESD).

<u>Site</u>	<u>Estimated Ground Cover from ESD</u>	<u>Ground Cover Measured in 2009</u>	<u>Estimated Composition by Weight from ESD</u>			<u>Composition by cover measured in 2009</u>			
			<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>	<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>	<u>Weeds*</u>
MB -1	10-20%	50%	45%	50%	5%	76%	14%	10%	0%
MB -3	20-30%	31%	35%	60%	5%	51%	33%	15%	0%
MB -5	10-20%	41%	45%	50%	5%	85%	15%	0%	0%
MB -8	10-20%	41%	45%	50%	5%	57%	29%	12%	2%
MB -10	10-20%	47%	45%	50%	5%	70%	26%	4%	0%
MB -12	10-20%	42%	45%	50%	5%	83%	13%	4%	0%
MB -13	10-20%	39%	45%	50%	5%	86%	14%	0%	0%
MB -14	10-20%	51%	45%	50%	5%	83%	13%	2%	2%
MB -15 (Paris cr.)	5-15%	66%	40%	55%	5%	30%	23%	30%	18%
MB -16 (Paris cr.)	35-50%	65%	35%	55%	10%	36%	22%	38%	4%
Telegraph - 3	15-25%	65%	20%	75%	5%	53%	21%	25%	0%
Telegraph - 4	35-50%	82%	35%	55%	10%	41%	13%	46%	0%
Telegraph - 5	15-25%	87%	20%	75%	5%	42%	33%	26%	0%
Telegraph - 7	--	67%	--	--	--	41%	8%	51%	0%
Telegraph - 8	15-25%	73%	20%	75%	5%	42%	17%	41%	0%
Telegraph - 9	15-25%	69%	20%	75%	5%	50%	9%	41%	0%

*Includes: mustard species, bur buttercup, cheatgrass

Table 6.3 Functional group vegetation cover measured in 2009 at random sagebrush sites.

<u>Site</u>	<u>Cover</u>			
	<u>Shrubs</u>	<u>Grasses</u>	<u>Forbs</u>	<u>Weeds*</u>
MB -1	45%	8%	6%	0%
MB -3	20%	13%	6%	0%
MB -5	41%	7%	0%	0%
MB -8	28%	14%	6%	1%
MB -10	16%	6%	1%	0%
MB -12	40%	6%	2%	0%
MB -13	37%	6%	0%	0%
MB -14	45%	7%	1%	1%
MB -15 (Paris cr.)	37%	29%	37%	22%
MB -16 (Paris cr.)	28%	17%	30%	3%
Telegraph - 3	55%	22%	26%	0%
Telegraph - 4	49%	15%	55%	0%
Telegraph - 5	55%	43%	34%	0%
Telegraph - 7	43%	8%	54%	0%
Telegraph - 8	48%	19%	46%	0%
Telegraph - 9	44%	8%	36%	0%

*Includes: mustard species, bur buttercup, cheatgrass

APPENDIX II MAPS

Figure 1. Medicine Butte Allotment Map

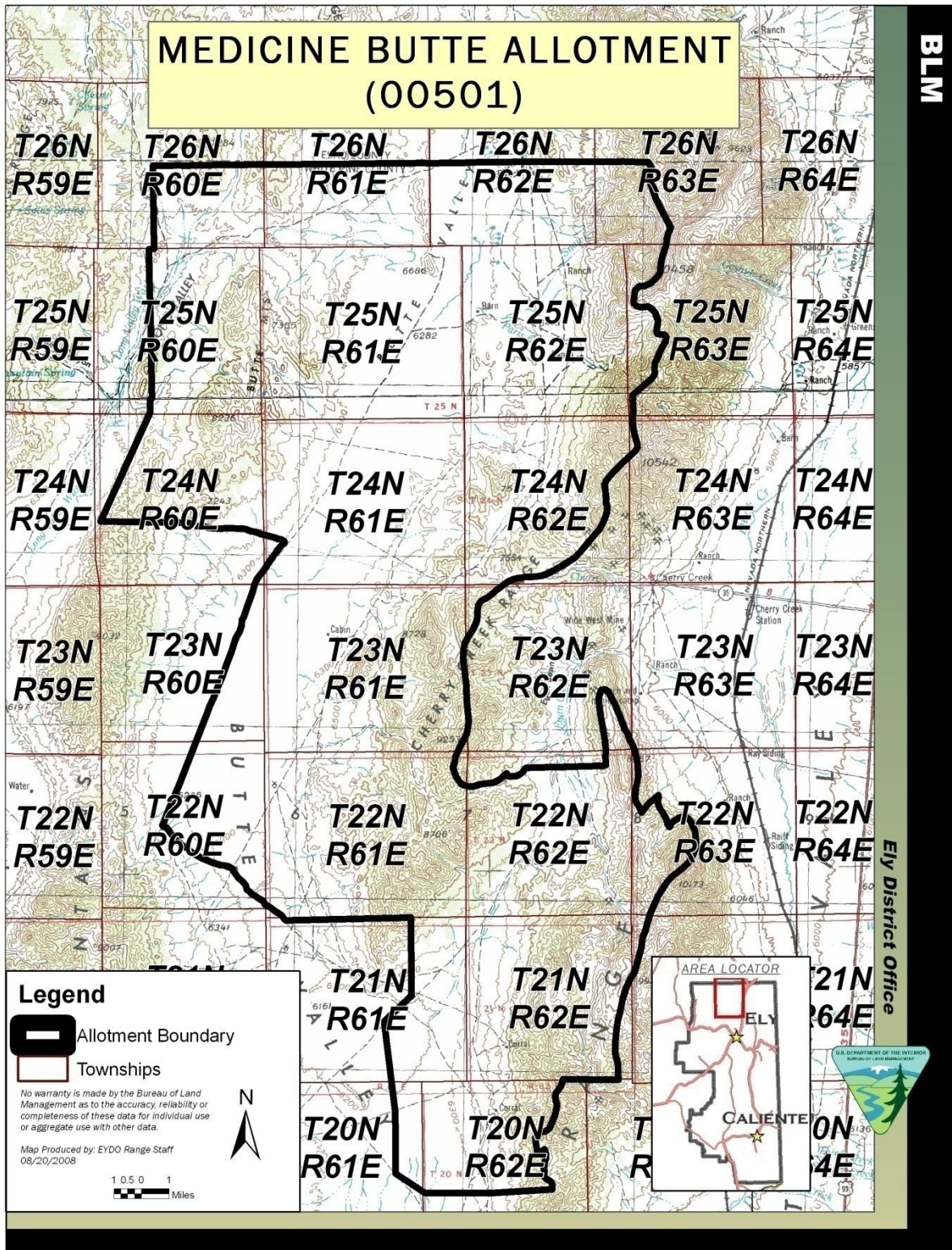


Figure 2. Triple B Herd Management Area, Goshute Basin Wilderness, and Pony Express Trail within the Medicine Butte Allotment

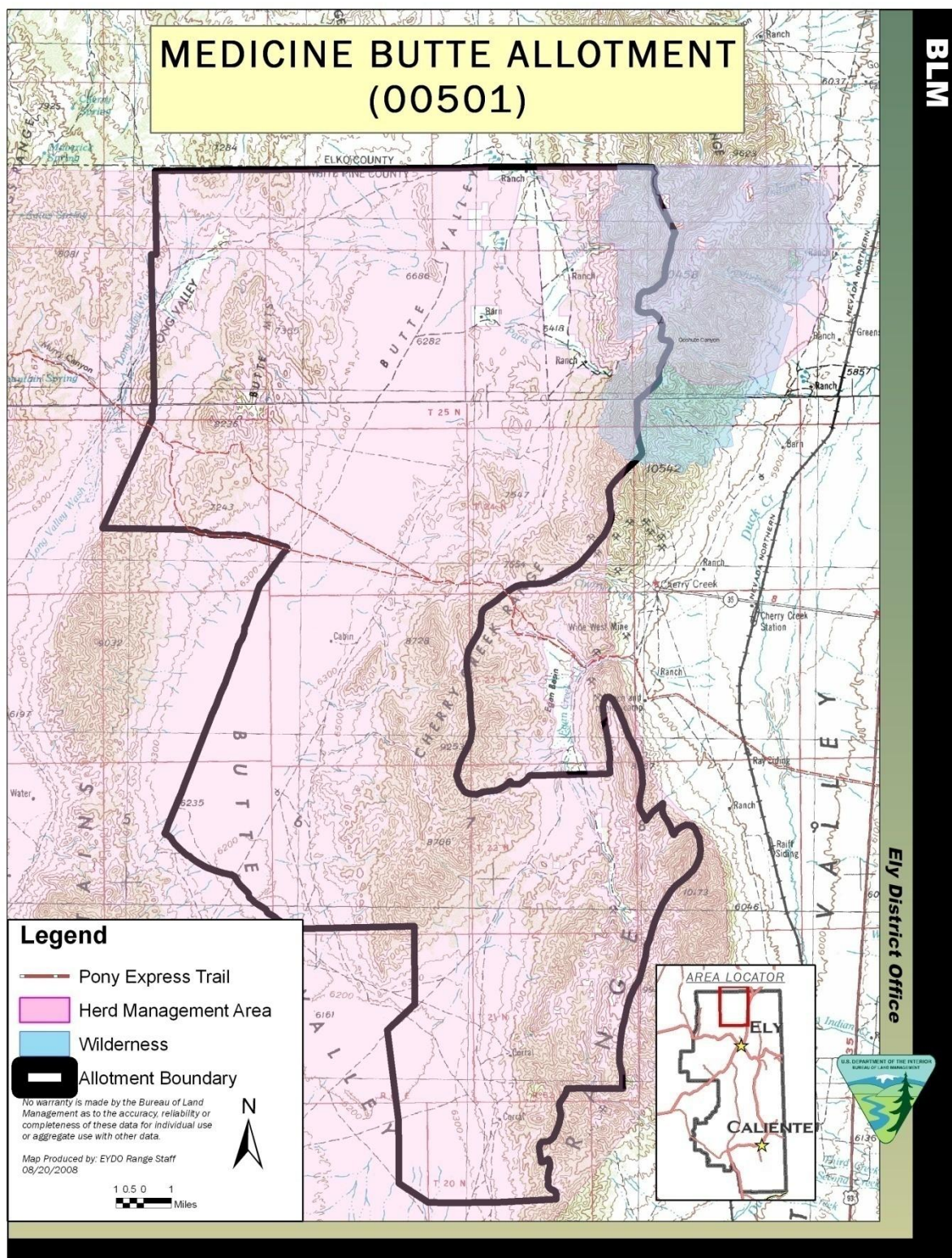


Figure 3. Medicine Butte Allotment Key Areas

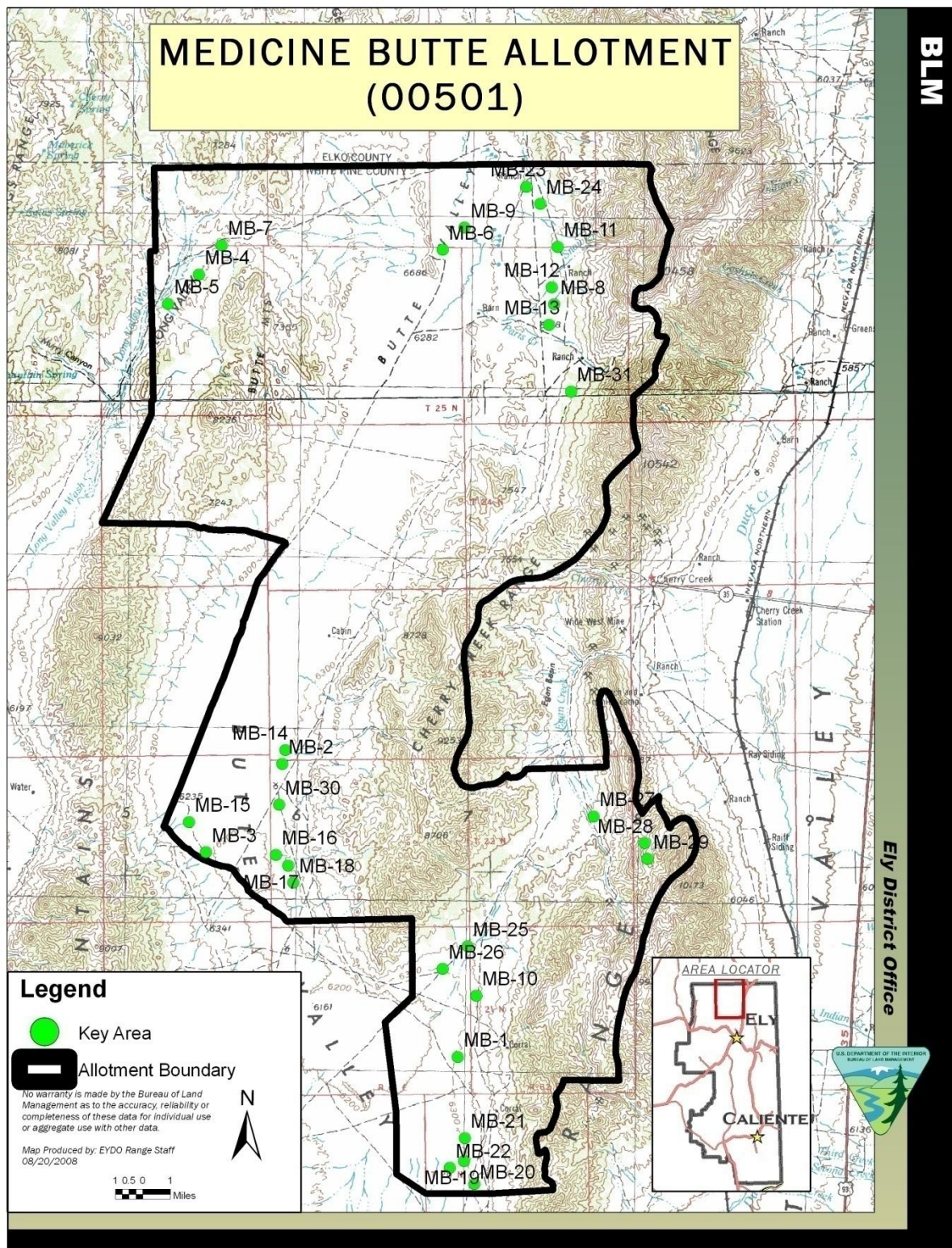


Figure 4. Springs assessed for Proper Functioning Condition within the Medicine Butte Allotment (springs without names are unnamed)

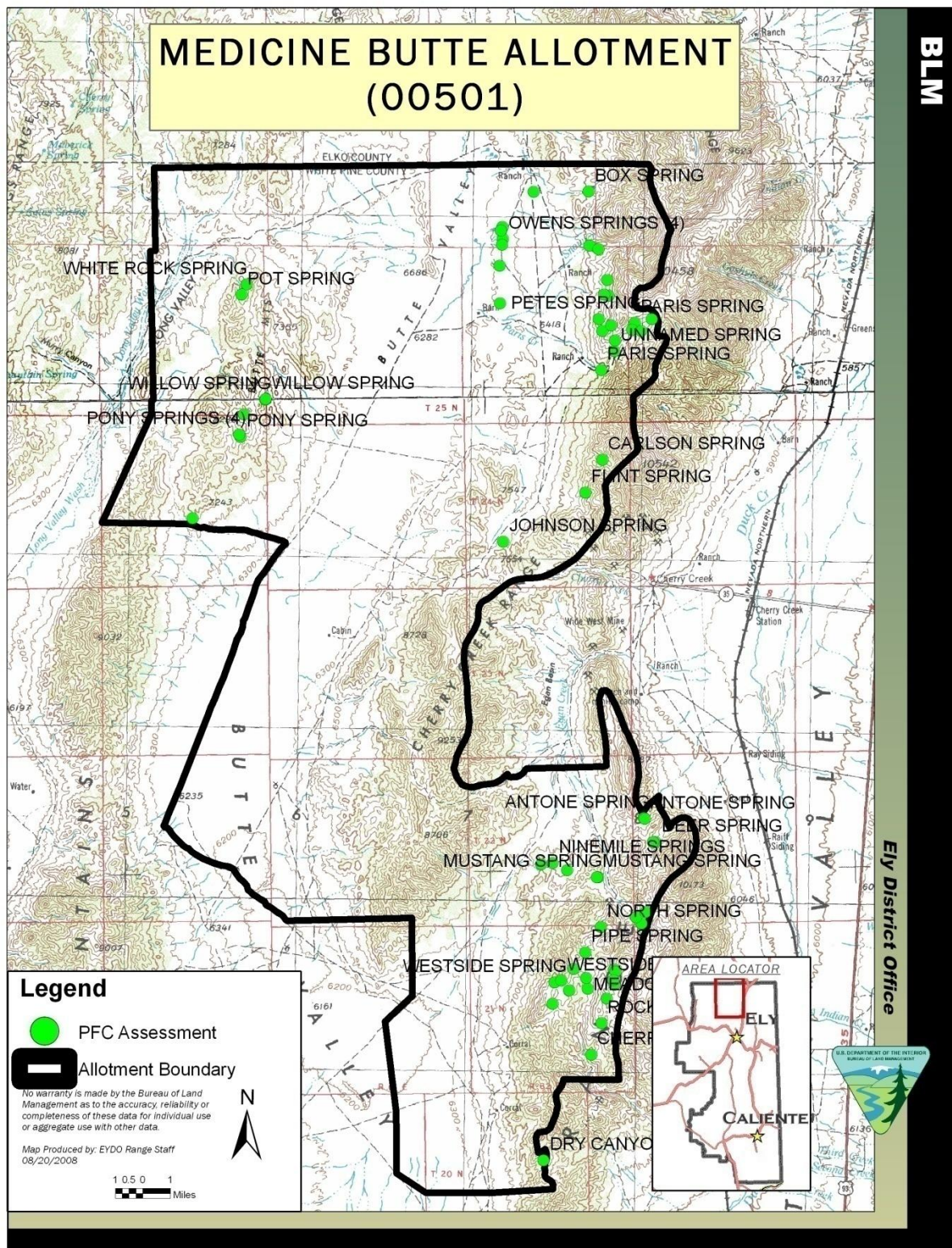


Figure 5. Medicine Butte number of Animal Unit Months (AUMs) and Use dates for authorization # 2700045 permit from 4/15/2004 to 4/15/2014 (i.e. Mandatory Terms and Conditions on current permit).

<u>Pasture</u>	<u>Livestock</u>		<u>Grazing</u>		<u>% Public</u>	<u>AUM's</u>
	<u>#</u>	<u>Kind</u>	<u>Begin</u>	<u>End</u>	<u>Land</u>	
MEDICINE BUTTE	2599	Sheep	4/15	11/15	100	3674
MEDICINE BUTTE	296	Cattle	3/1	2/28	100	3552

7232 Active AUMs; 7942 Suspended AUMs; 15,174 Total AUMs.

Figure 6. Medicine Butte number of Animal Unit Months (AUMs) and Use dates by pasture for authorization # 2700045 permit from 4/15/2004 to 4/15/2014 (i.e. Other Terms and Conditions on current permit).

<u>Pasture</u>	<u>Livestock</u>		<u>Grazing</u>		<u>% Public</u>	<u>AUM's</u>	
	<u>#</u>	<u>Kind</u>	<u>Begin</u>	<u>End</u>	<u>Land</u>		
BLACK MT./CANYON	151	Sheep	4/15	11/15	100	213	
BUTTE VALLEY	340	Sheep	4/15	11/15	100	481	
BUTTE VALLEY	68	Cattle	3/1	2/28	100	820	
HUNTER POINT	482	Sheep	4/15	11/15	100	681	
HUNTER POINT	120	Cattle	11/1	2/28	100	473	
PONY MT./PARIS SDG.	641	Sheep	4/15	11/15	100	906	
SLOUGHS/MEADOWS	113	Cattle	5/1	2/28	100	1130	
SNOW CREEK NORTH	31	Sheep	4/15	11/15	100	44	**
SNOW CREEK SOUTH	14	Sheep	4/15	11/15	100	20	**
SNOW CREEK NORTH	38	Cattle	4/15	2/28	100	401	**
SNOW CREEK SOUTH	45	Cattle	4/15	2/28	100	476	**
SNOW CREEK WEST	24	Cattle	4/15	2/28	100	257	**
TELEGRAPH	941	Sheep	4/15	11/15	100	1330	

** A domestic horse reference of 180 AUMs can be substituted for an equal amount of sheep and/or cattle AUMs in all of the Snow Creek Seedings combined.

The Medicine Butte allotment authorizes sheep grazing within certain pastures from 4/15 to 11/15. Currently, sheep do not graze the north and south snow creek seedings or the black mountain pasture. Sheep typically start the grazing year (i.e. 3/1 – 2/28) in the hunter point and/or butte valley pastures. Some sheep will remain within the butte valley pasture through entire season (i.e. 4/15 – 11/15). Sheep are generally moved off the hunter point pasture on to adjacent pastures by mid June. On years when the Pony Mountain/Paris seeding was utilized, typically two bands of sheep grazed the eastern portion of the pasture between May and August. The Telegraph pasture is typically grazed from mid June through the middle of October. Sheep are again moved back onto the hunter point pasture during the months of October and November, before moving off this allotment.

The Medicine Butte allotment authorizes cattle grazing within certain pastures year long. Cattle typically start out the grazing year (i.e. 3/1 – 2/28) in the butte valley pasture or on private land,

grazing from the beginning of March through the beginning of May. Utilization in the butte valley pasture has been relatively heavier on the east side (i.e. the bench) in the southern portion of this pasture and around the slough/meadows and snow creek seeding pastures. Use in the cherry burn has typically been during the spring season. Following use in the butte valley pasture, cattle are then split into groups and moved to the snow creek seedings or the slough/meadow pasture, remaining in those pastures typically through October. Based on winter conditions, cattle are then moved back to the butte valley pasture on winter range through the following May. The hunter point pasture is utilized from the end of December to the end of February. However, this pasture has not been utilized many years because snow during the winter can cut off access.

Domestic horse are also authorized within the snow creek seeding pastures. The current permittees have inconsistently licensed domestic horses within this allotment.

Figure 6. *continued.*

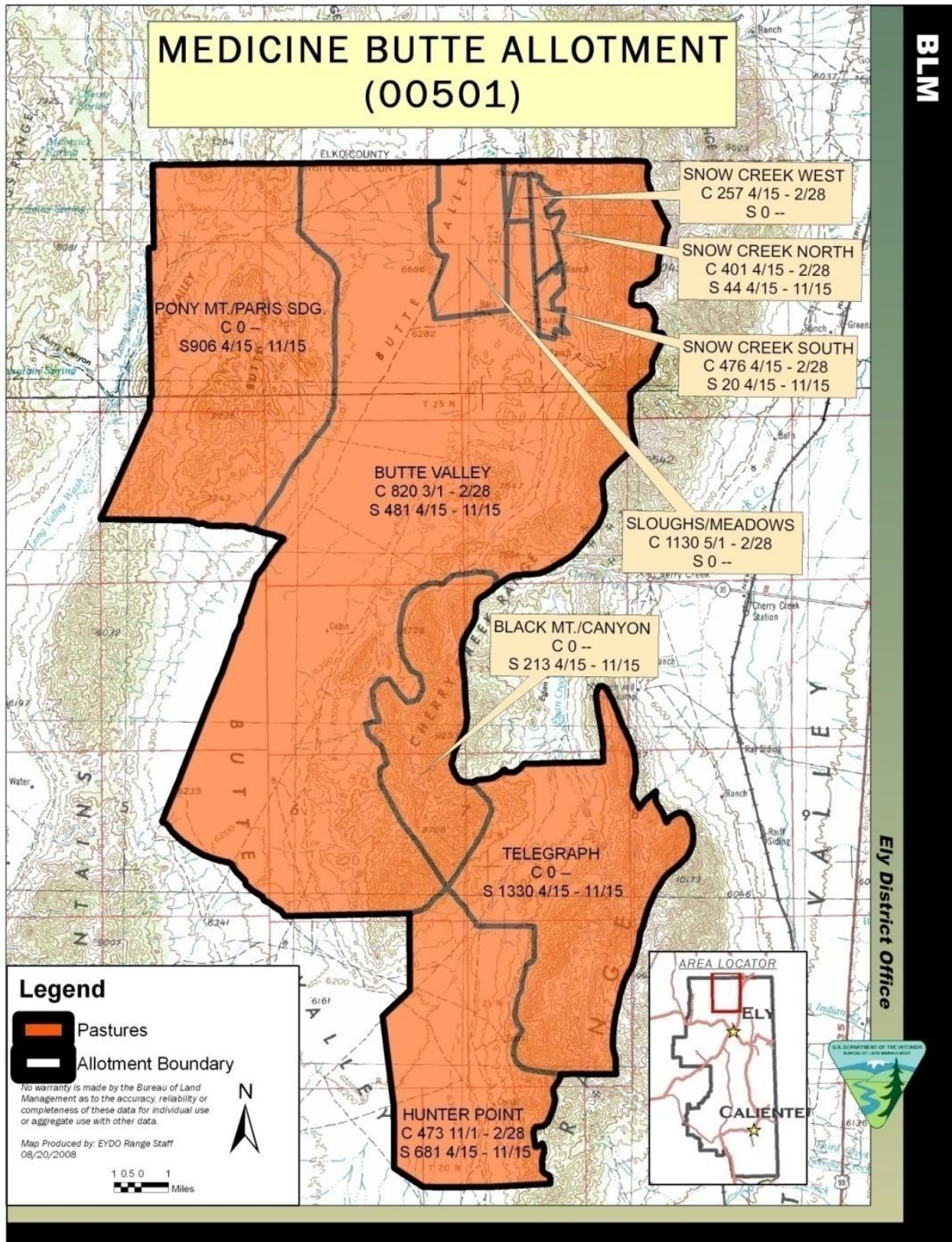


Figure 7. Animal Unit Months (AUMs) and Use dates by pasture for authorization # 2700045 permit (i.e. Other Terms and Conditions for the proposed permit).

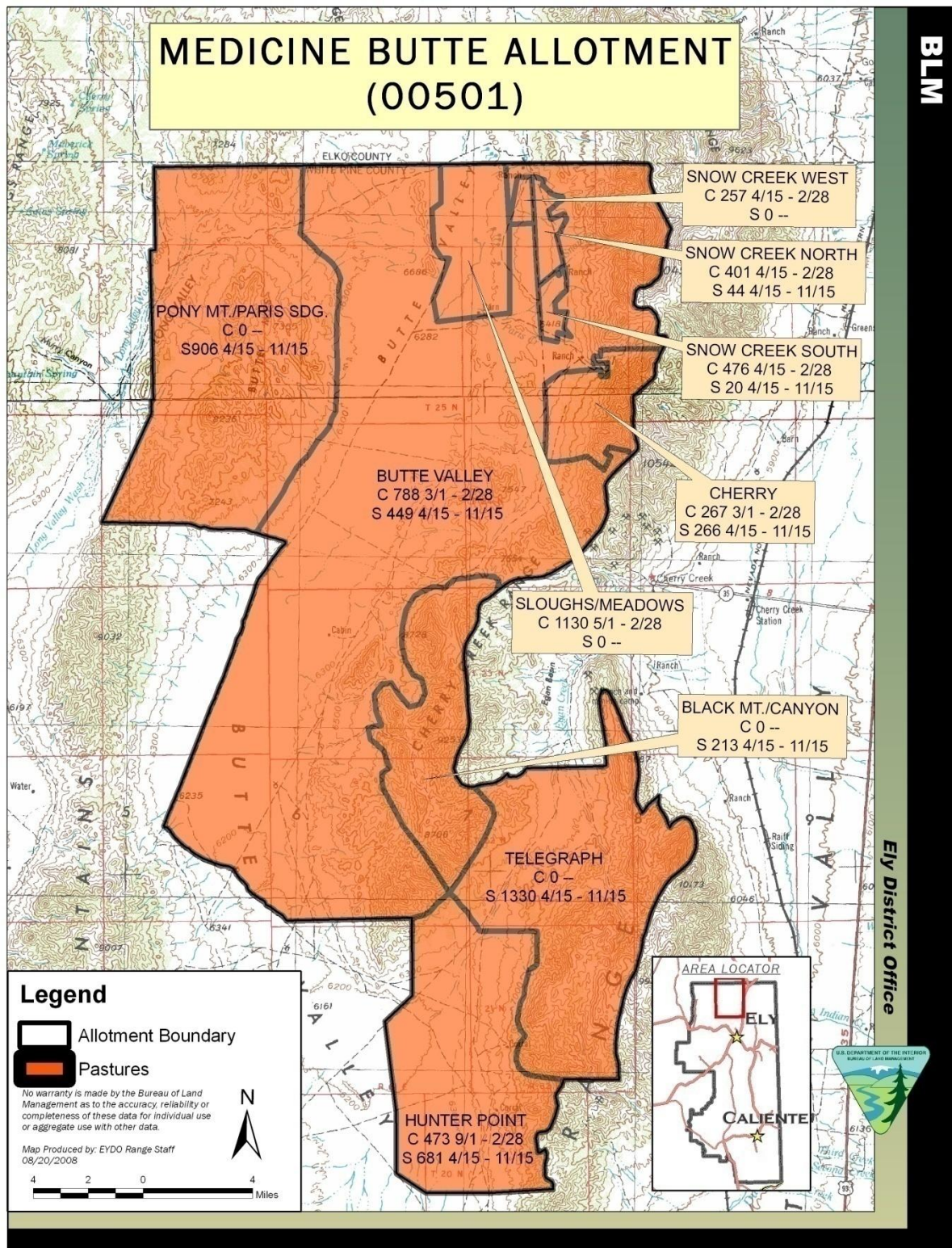


Figure 8. The Cherry Fire Fence within the Medicine Butte Allotment

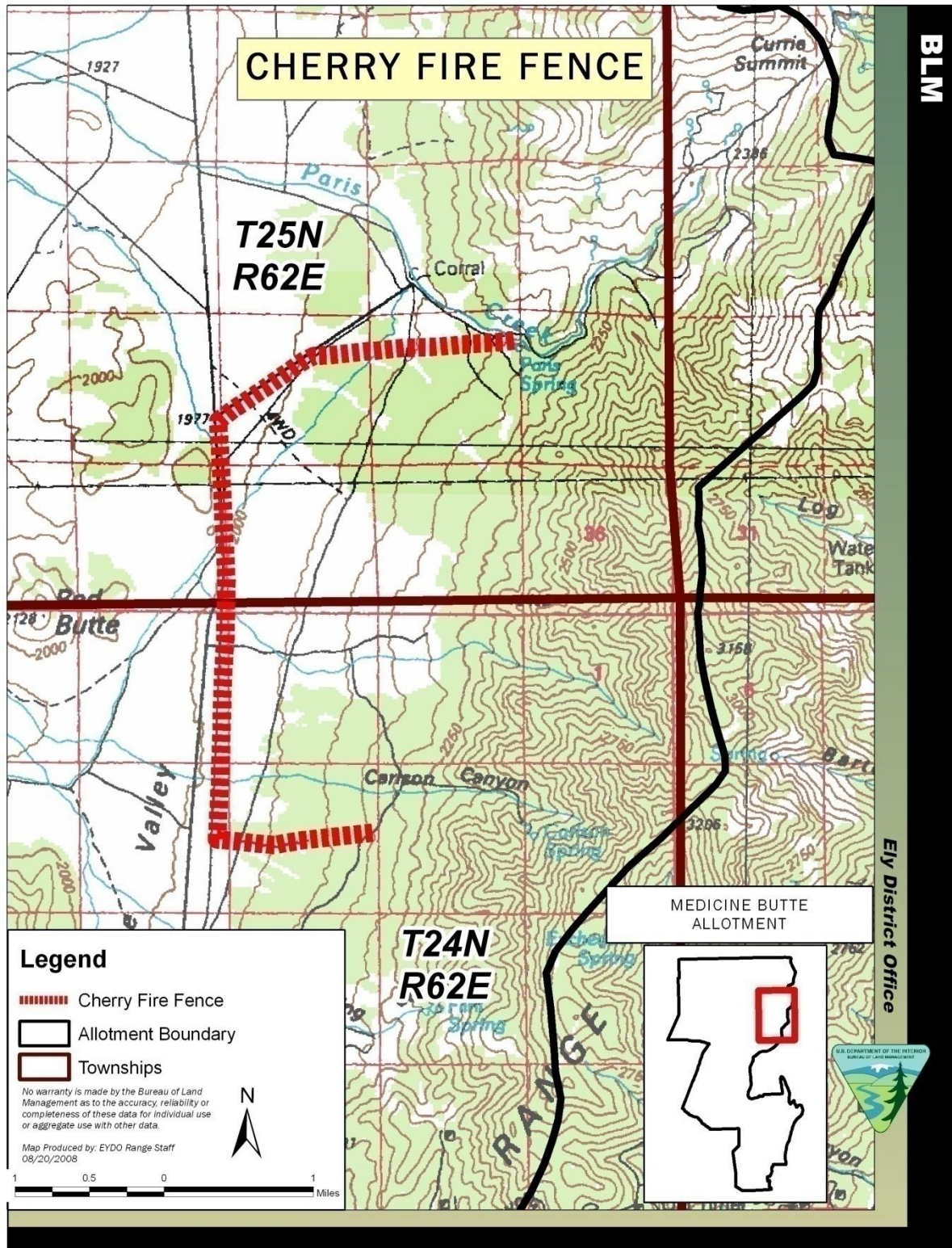


Figure 9. Soils within the Medicine Butte Allotment

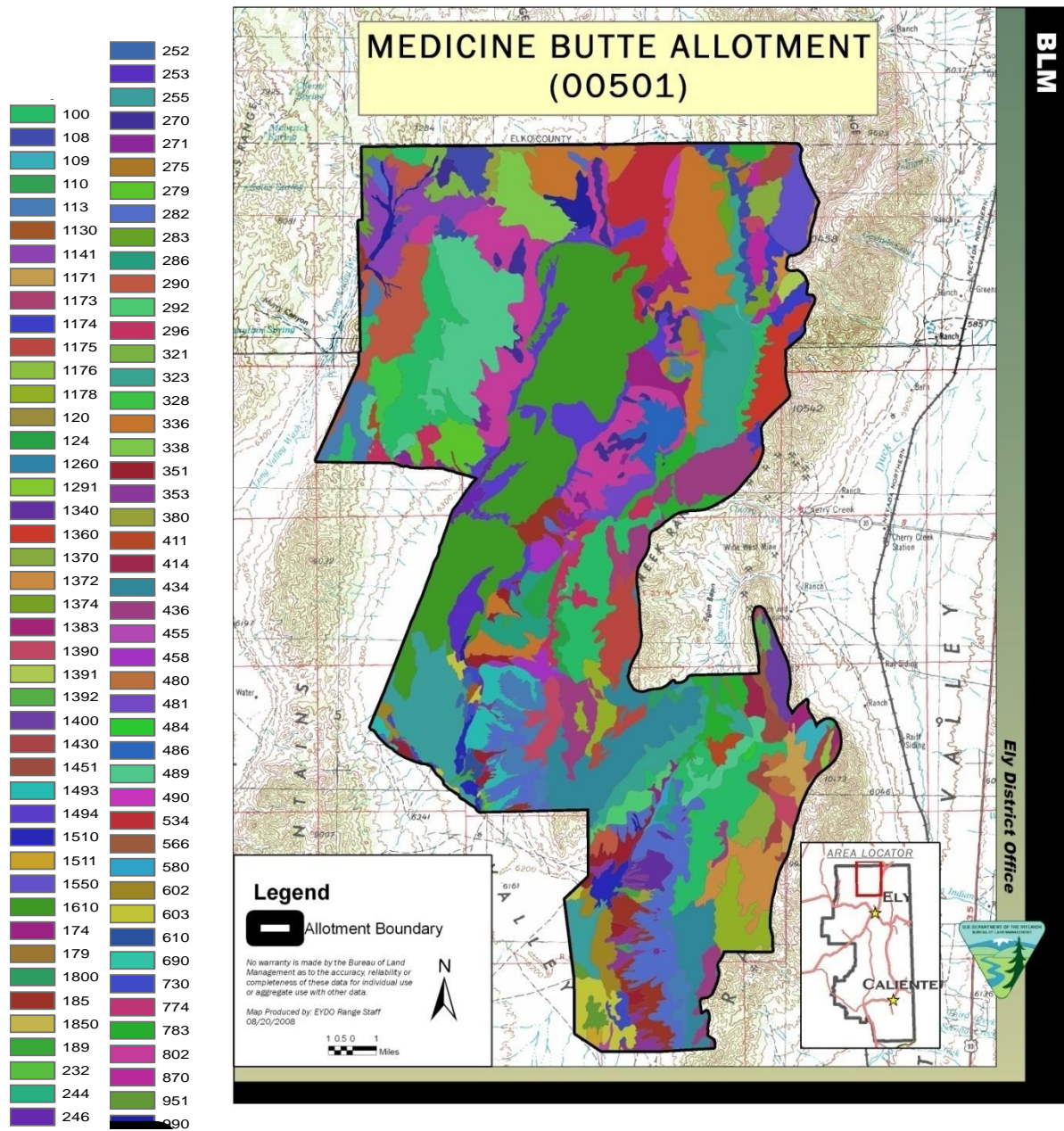


Figure 9. *continued.*

Number	Soil Name	Number	Soil Name
100	Pookaloo-Cavehill-Rock outcrop association	489	Pioche-Mclvey-Birchcreek association
108	Pookaloo-Tecomar-Rock outcrop association	490	Kunzler loam, 0 to 2 percent slopes
109	Hyzen-Cavehill association	534	Duffer-Kolda association
110	Zimbob association	566	Mclvey-Segura-Cropper association
113	Zimbob-Pookaloo association	580	Uwell-Kelk association
120	Tecomar-Pookaloo-Zimbob association	602	Blimo-Nyak-Raph association
124	Tecomar-Pookaloo association	603	Blimo-Uwell association
174	Blimo-Pyrat association	610	Broyles-Heist-Unsel association
179	Tulase-Pern association	690	Devilsgait-Cassiro association
185	Pyrat-Heist-Tulase association	730	Zimwala-Uwell-Zimwala, moist association
189	Pyrat-Linoyer association	774	Cropper-Rubble land association
232	Linoyer-Heist-Tulase association	783	Bobs very gravelly loam, 2 to 8 percent slopes
244	Katelana-Raph association	802	Broland-Yody association
246	Katelana-Blimo association	870	Amelar-Eoj association
252	Sheffit-Equis association	951	Nyak-Uwell-Pern association
253	Sheffit-Zorravista association	990	Blimo-Kunzler-Pern association
255	Sheffit-Kunzler association	1130	Duffer-Equis association
270	Atlow-Maderbak-Rubble land association	1141	Shabliss-Pyrat association
271	Atlow association	1171	Haunchee-Hardol-Halacan association
275	Atlow-Upatad association	1173	Haunchee-Hardol-Rock outcrop association
279	Atlow-Broland-Yody association	1174	Haunchee-Wardbay-Hardzem association
282	Palinor very gravelly loam, 2 to 15 percent slo	1175	Haunchee-Hardol-Hardzem association
283	Palinor-Urmafot association	1176	Haunchee-Hardzem-Rock outcrop association
286	Palinor-Shabliss association	1178	Haunchee-Hardol-Xine association
290	Palinor-Shabliss-Tulase association	1260	Urmafot association
292	Palinor-Urmafot-Urmafot, very shallow associati	1291	Maderbak-Mclvey association
296	Palinor-Urmafot-Palinor, steep association	1340	Pyrat-Tulase association
321	Palinor association	1360	Eganroc-Hyzen-Hardzem association
323	Urmafot-Bobs-Palinor association	1370	Wardbay-Haunchee-Hardol association
328	Urmafot-Tecomar-Pookaloo association	1372	Wardbay-Hardol-Adobe association
336	Parisa gravelly loam, 2 to 8 percent slopes	1374	Wardbay-Adobe-Haunchee association
338	Parisa-Palinor-Tulase association	1383	Cavehill-Rock outcrop association
351	Heist-Tulase association	1390	Chen-Segura-Mclvey association
353	Heist silt loam, 0 to 4 percent slopes	1391	Chen-Tusel association
380	Palinor-Parisa association	1392	Chen-Mclvey-Birchcreek association
411	Cassiro association	1400	Suak-Segura-Mclvey association
414	Cassiro-Belmill association	1430	Hardzem-Haunchee-Wardbay association
434	Pookaloo-Hyzen association	1451	Birchcreek-Segura-Chen association
436	Pookaloo-Hyzen-Cavehill association	1493	Pyrat-Parisa-Tulase association
455	Shabliss-Tulase-Linoyer association	1494	Pyrat-McConnel association
458	Shabliss-Pyrat-Palinor association	1510	Raph-Zimwala-Heist association
480	Pioche-Cropper association	1511	Hessing-Uwell-Zimwala association
481	Pioche-Segura-Cropper association	1550	Haunchee-Muiral-Wardbay association
484	Pioche-Birchcreek-Cropper association	1610	Sheffit-Blimo association
486	Pioche-Cropper-Upatad association	1800	Pookaloo-Onkeyo-Cavehill association
		1850	Clanalpine-Rubble land-Rock outcrop association

APPENDIX III

CALCULATING AUM'S FOR CHERRY AND BUTTE VALLEY PASTURES

The following steps were used to estimate the appropriate stocking level (i.e. number of AUM's) for the Cherry pasture and adjust the Butte Valley pasture. This AUM calculation used conservative values and is a conservative method. This is an initial estimate based on current information. Future monitoring data will be used to adjust the stocking level appropriately.

A. Cherry Pasture

1. The Cherry pasture is approximately 7,761 acres; however, only about 5,494 acres are usable by livestock due to terrain constraints (Figure 1). Of these 5,494 acres, 1,643 remained unburned, while 3,851 acres were burned (Figure 2).
2. Livestock numbers have been adjusted over time in Butte Valley to get approximately 120 acres/AUM. Therefore the amount of unburned area can support approximately 14 AUM's (1,643 unburned acres/120 acres/AUM = 14 AUM's).
3. Forage production was measured at 1,064 lbs. (i.e. bunchgrasses and cheatgrass) per acre in the burned portion (i.e. key area 31) of the Cherry Pasture.
 - a. Factoring in that this was an above average precipitation year (average since 1984 is 7.9 inches / 9.73 inches in 2009 = 81%), $1,064 \text{ lbs./acre} * 81\% = 862 \text{ lbs./acre}$ on an average precipitation year.
 - b. With 862 lbs./acre on an average precipitation year and having 3,851 burned acres = 3,319,319 lbs of forage on an average precipitation year in the burned portion of the Cherry Pasture.
 - c. To sustainably graze this pasture, utilization should not exceed 50%; therefore $3,319,319 \text{ lbs of forage per acre} * 50\% = 1,659,660 \text{ lbs. of available forage}$ for livestock.
 - d. Assuming that 1 animal unit (AU) consumes 26 lbs. of forage daily, an Animal Unit Month is equivalent to approximately 800 lbs. of forage; In addition, animal harvest efficiency is assumed to be 25%. Therefore, $1,659,660 \text{ lbs of forage available} / 800 \text{ lbs/AUM} * 25\% = 519 \text{ AUM's}$ in the burned portion of the Cherry Pasture (BLM definitions: http://www.blm.gov/nv/st/en/prog/grazing/range_program_glossary.html, NRCS 2002, NRCS 2008)
 - e. Adding the burned (519) and unburned (14) AUM's equals 533 AUM's available in the Cherry pasture.
 - f. Pasture AUM's will be split evenly between cattle and sheep (i.e. cattle = 267 AUMs; sheep = 266 AUMs)

B. Butte Pasture

1. The Butte pasture contains 1,301 AUM/s across 155,673 acres for approximately 120 acres/AUM.
2. 7,761 acres from the Butte Valley Pasture are being proposed for conversion to the Cherry pasture; therefore 147,912 acres will remain in Butte Valley. Having 7,761 acres transferred to the Cherry Pasture from the Butte Valley Pasture is equal to 64 AUMs being moved out of the Butte Valley Pasture (i.e. $32 \text{ Cattle and } 32 \text{ Sheep AUM's}$) ($7,761 \text{ acres removed} / 120 \text{ acres/AUM} = 64 \text{ AUM's}$).

Figure 8. Grazable vs. un-grazable area within the proposed Cherry Pasture

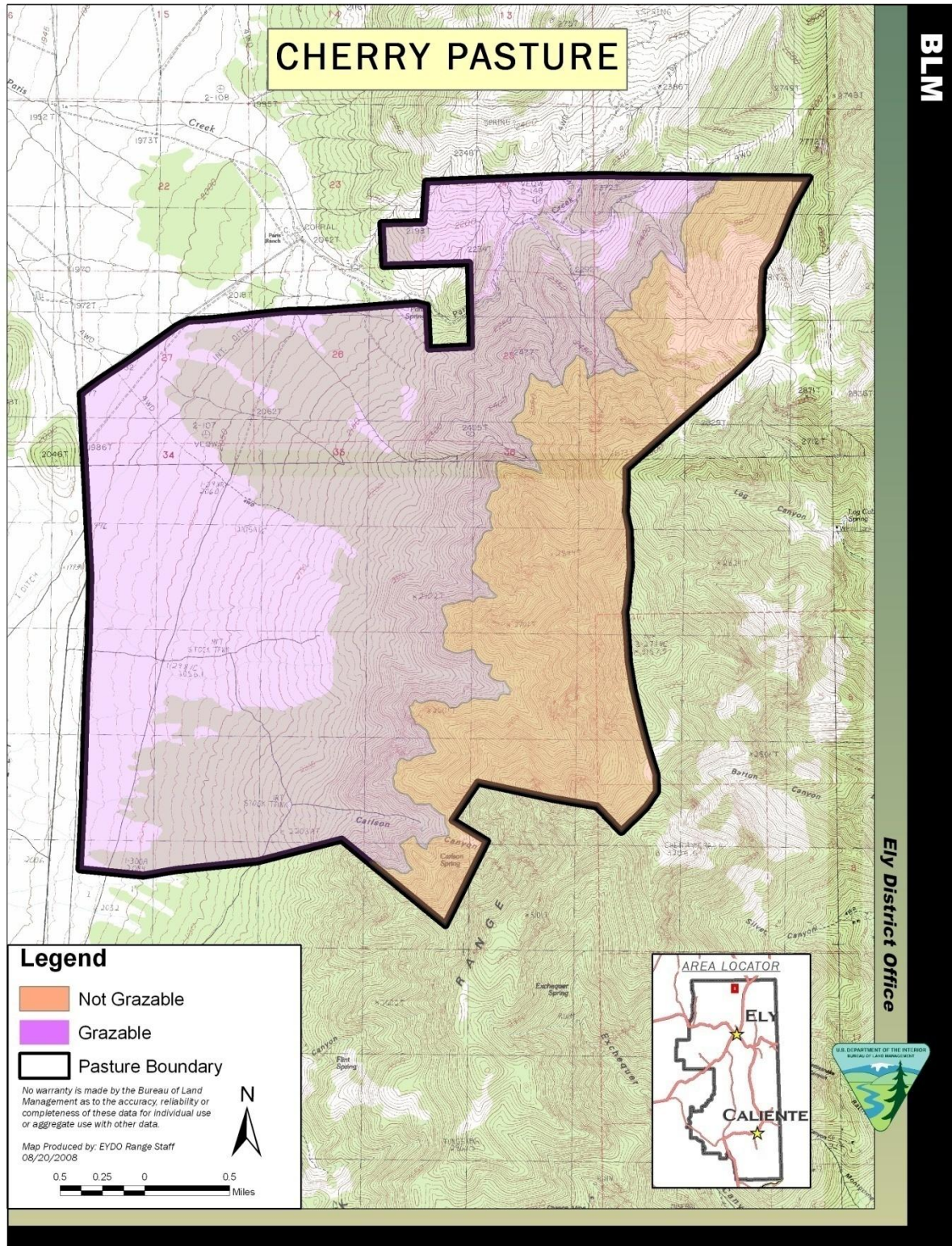


Figure 8. Burned vs. un-burned area within the proposed Cherry Pasture

